=> file reg
FILE 'REGISTRY' ENTERED AT 09:49:22 ON 09 MAR 2004
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STRUCTURE FILE UPDATES: 8 MAR 2004 HIGHEST RN 660388-34-1
DICTIONARY FILE UPDATES: 8 MAR 2004 HIGHEST RN 660388-34-1

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

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http://www.cas.org/ONLINE/DBSS/registryss.html

=> file hcaplus
FILE 'HCAPLUS' ENTERED AT 09:49:27 ON 09 MAR 2004
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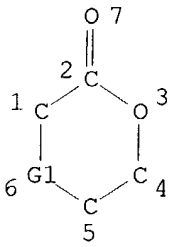
FILE COVERS 1907 - 9 Mar 2004 VOL 140 ISS 11
FILE LAST UPDATED: 8 Mar 2004 (20040308/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que
L7 STR



72,403 structures from this query which covers I, II + III

REP G1=(0-1) C
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RSPEC I
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L9	72403	SEA FILE=REGISTRY SSS FUL L7	
L10	70398	SEA FILE=HCAPLUS ABB=ON	L9
L11	169	SEA FILE=HCAPLUS ABB=ON	L10 AND REFRIG?
L12	17	SEA FILE=HCAPLUS ABB=ON	L11 AND COMPOSITION?
L13	100	SEA FILE=HCAPLUS ABB=ON	L10(L)COMPAT?
L15	0	SEA FILE=HCAPLUS ABB=ON	L13 AND REFRIG?
L16	233	SEA FILE=HCAPLUS ABB=ON	L10 AND COMPATIBILI?
L17	0	SEA FILE=HCAPLUS ABB=ON	L16 AND REFRIG?
L20	8	SEA FILE=HCAPLUS ABB=ON	L13 AND FLUORO?
L21	25	SEA FILE=HCAPLUS ABB=ON	L12 OR L15 OR L17 OR L20
L22	11	SEA FILE=HCAPLUS ABB=ON	L11 AND FLUORO?
L23	31	SEA FILE=HCAPLUS ABB=ON	L21 OR L22

31 CA references with utility

=> d l23 all 1-31 hitstr

L23 ANSWER 1 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:143245 HCAPLUS
ED Entered STN: 22 Feb 2004
TI **Refrigerant compositions** comprising performance enhancing additives
IN Leck, Thomas J.; Fagan, Paul Joseph
PA E. I. Du Pont De Nemours and Company, USA
SO PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10M
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004015042	A2	20040219	WO 2003-US25025	20030808

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,

LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-402364P P 20020808

AB The present invention is related to **refrigerant** and lubricant compns. containing performance-enhancing additives. The performance enhancing additives are found to improve the energy efficiency and capacity of vapor compression **refrigeration** and air conditioning systems, which utilize hydrofluorocarbon **refrigerants** (e.g. HFC-134a) and oxygenated **refrigeration** lubricants (e.g. POEs, PAGs and PVEs).

ST **refrigerant** lubricant additive

IT Alkanes
RL: MOA (Modifier or additive use); USES (Uses)
(1,1,1-Trifluoro derivs; **refrigerant** compns. comprising performance enhancing additives)

IT Ethers
RL: MOA (Modifier or additive use); USES (Uses)
(aromatic; **refrigerant** compns. comprising performance enhancing additives)

IT Metacyclophanes
RL: MOA (Modifier or additive use); USES (Uses)
(calixarenes; **refrigerant** compns. comprising performance enhancing additives)

IT Hydrocarbons
RL: MOA (Modifier or additive use); USES (Uses)
(chloro; **refrigerant** compns. comprising performance enhancing additives)

IT Hydrocarbons
RL: TEM (Technical or engineered material use); USES (Uses)
(**fluoro; refrigerant** compns. comprising performance enhancing additives)

IT Ethers
RL: MOA (Modifier or additive use); USES (Uses)
(**fluoroalkyl; refrigerant** compns. comprising performance enhancing additives)

IT Alcohols
RL: MOA (Modifier or additive use); USES (Uses)
(polyhydric, esters; **refrigerant** compns. comprising performance enhancing additives)

IT **Refrigerants**
(**refrigerant** compns. comprising performance enhancing additives)

IT Amides
Crown ethers
Esters
Lactones
Nitriles
Polyoxyalkylenes
RL: MOA (Modifier or additive use); USES (Uses)
(**refrigerant** compns. comprising performance enhancing additives)

IT Perfluorocarbons
RL: TEM (Technical or engineered material use); USES (Uses)

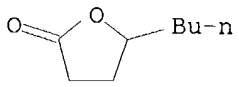
(**refrigerant** compns. comprising performance enhancing additives)

IT **104-50-7**, γ-Octalactone **104-61-0**, γ-Nonalactone **104-67-6**, γ-Undecalactone **108-29-2**, γ-Valerolactone 111-13-7, 2-Octanone 143-24-8, Tetraglyme 540-88-5, tert-Butyl acetate 590-01-2, N-Butyl propionate **706-14-9**, γ-Decalactone 761-65-9, N,N-Dibutylformamide 811-97-2, HFC-134a 2556-73-2, 1-Methylcaprolactam 2687-94-7, 1-Octyl pyrrolidin-2-one 12619-70-4, Cyclodextrins 17455-13-9, 18-crown-6 ether **18436-37-8** 19090-89-2 **63450-32-8** 111109-77-4, Dipropylene glycol dimethyl ether 158675-78-6, R407C 657389-33-8
RL: MOA (Modifier or additive use); USES (Uses)
(**refrigerant** compns. comprising performance enhancing additives)

IT 124-38-9, Carbon dioxide 7664-41-7, Ammonia 406913-95-9, Arctic EAL22
RL: TEM (Technical or engineered material use); USES (Uses)
(**refrigerant** compns. comprising performance enhancing additives)

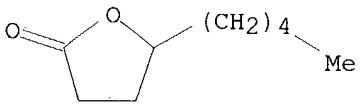
IT **104-50-7**, γ-Octalactone **104-61-0**, γ-Nonalactone **104-67-6**, γ-Undecalactone **108-29-2**, γ-Valerolactone **706-14-9**, γ-Decalactone **18436-37-8** **63450-32-8**
RL: MOA (Modifier or additive use); USES (Uses)
(**refrigerant** compns. comprising performance enhancing additives)

RN 104-50-7 HCAPLUS
CN 2(3H)-Furanone, 5-butyldihydro- (8CI, 9CI) (CA INDEX NAME)

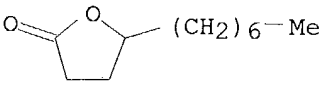


RN 104-61-0 HCAPLUS
CN 2(3H)-Furanone, dihydro-5-pentyl- (8CI, 9CI) (CA INDEX NAME)

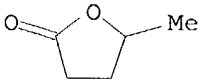
Currently available stereo shown.



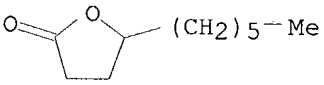
RN 104-67-6 HCAPLUS
CN 2(3H)-Furanone, 5-heptyldihydro- (8CI, 9CI) (CA INDEX NAME)



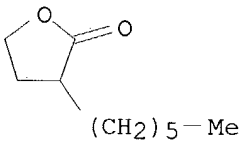
RN 108-29-2 HCAPLUS
CN 2(3H)-Furanone, dihydro-5-methyl- (8CI, 9CI) (CA INDEX NAME)



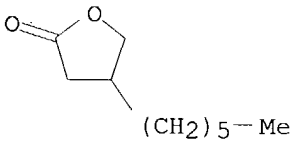
RN 706-14-9 HCAPLUS
CN 2(3H)-Furanone, 5-hexyldihydro- (8CI, 9CI) (CA INDEX NAME)



RN 18436-37-8 HCAPLUS
CN 2(3H)-Furanone, 3-hexyldihydro- (8CI, 9CI) (CA INDEX NAME)



RN 63450-32-8 HCAPLUS
CN 2(3H)-Furanone, 4-hexyldihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 2 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:417834 HCAPLUS
DN 138:404003
ED Entered STN: 01 Jun 2003
TI Synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups
IN Oumar-Mahamat, Halou; Douglas, Lowen A.; Ardito, Susan C.
PA Exxonmobil Chemical Patents Inc., USA
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10M105-68
ICS C10M105-72; C07C269-04; C07C271-16; C07C271-20; C07C323-41; C07C323-42
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 38
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI WO 2003044136 A1 20030530 WO 2002-US26694 20020822
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
PRAI US 2001-992675 A 20011119
OS MARPAT 138:404003
AB Synthetic lubricant basestocks containing ester and carbamate functions with (optionally) an amide function are prepared by reaction of an amine, of formula (XR1)2NH (X = OH, SH, NHY, and C4R5R6; R1 = C1-4-alkylene, or alkyl-substituted C1-4-alkylene, in which both R1 groups are not the same), a cyclic compound of formula (R2)ZCOZ1(R3) (R2 and R3 are alkenyl and alkylalkenyl; Z and Z1 = O, S, CR7R8, in which Z and Z1 are not CR7R8); and an acid of formula RCOOH (R, R4, R5, R6, R7, and R8 = H, hydrocarbyl, alkenyl, and C1-60-alkyl; and Y = H or C1-60-alkyl). The condensation products of the amine and the cyclic compds. are then reacted with the carboxylic acids (e.g., adipic acid, pentanoic acid, heptanoic acid, octanoic acid, decanoic acid, isooctadecanoic acid, oleic acid, 2-ethylhexanoic acid, nonanoic acid, isononanoic acid, and isooctanoic acid). The cyclic compds. are preferably propylene carbonate and ethylene carbonate. Higher-viscosity complex multifunctional esters are obtained with polycarboxylic acids or acid anhydrides and/or polyamines.
ST multifunctional carbamate ester amide lubricating basestock; lubricant basestock multifunctional carbamate ester amide; amine carbonate acid condensation carbamate lubricant basestock
IT Functional groups
(alkoxycarbonyl groups, lubricants containing; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT Lubricating oils
(base oils, synthetic, two-stroke; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT Lubricating oils
(base oils, synthetic; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT Functional groups
(carbamate, lubricants containing; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT Lubricating oils
(compressor, for hydrofluorocarbon **refrigerants**; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT Amides, uses
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(ester group-containing, lubricant basestocks; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); USES (Uses)
(**fluoro, refrigerants**; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)
IT **Refrigerants**
(hydrofluorocarbons; synthetic multifunctional lubricating basestocks

containing carbamate and ester functional groups)

IT Amide group
(lubricants containing; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT Carboxylic acids, uses
Fatty acids, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(reaction products with secondary amines and cyclic carbonates, lubricant basestocks; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT Amines, uses
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(secondary, reaction products with carboxylic acids and cyclic carbonates, lubricant basestocks; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT Lubricants
(synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT 96-49-1D, Ethylene carbonate, reaction products with carboxylic acids and secondary amines 108-32-7D, Propylene carbonate, reaction products with carboxylic acids and secondary amines 109-52-4D, Pentanoic acid, reaction products with cyclic carbonates and diethanolamine 111-14-8D, Heptanoic acid, reaction products with cyclic carbonates and diethanolamine 111-42-2D, Diethanolamine, reaction products with cyclic carbonates and carboxylic acids 112-05-0D, Nonanoic acid, reaction products with cyclic carbonates and diethanolamine 112-80-1D, Oleic acid, reaction products with cyclic carbonates and diethanolamine 124-04-9D, Adipic acid, reaction products with cyclic carbonates and diethanolamine 124-07-2D, Octanoic acid, reaction products with cyclic carbonates and diethanolamine 149-57-5D, 2-Ethylhexanoic acid, reaction products with cyclic carbonates and diethanolamine 334-48-5D, Decanoic acid, reaction products with cyclic carbonates and diethanolamine 463-79-6D, Carbonic acid, cyclic alkylene esters, reaction products with carboxylic acids and secondary amines 25103-52-0D, Isooctanoic acid, reaction products with cyclic carbonates and diethanolamine **25377-73-5D**, Dodecenylsuccinic anhydride, reaction products with cyclic carbonates and diethanolamine 26896-18-4D, Isononanoic acid, reaction products with cyclic carbonates and diethanolamine 30399-84-9D, Isooctadecanoic acid, reaction products with cyclic carbonates and diethanolamine
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(lubricant basestock; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

IT 811-97-2, R-134a
RL: NUU (Other use, unclassified); USES (Uses)
(**refrigerant**; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Dorn, P; US 3652240 A 1972 HCAPLUS
(2) Oumar-Mahamat, H; US 5962379 A 1999 HCAPLUS
(3) Sabahi, M; US 5240630 A 1993 HCAPLUS
(4) Wollenberg, R; US 4713188 A 1987 HCAPLUS

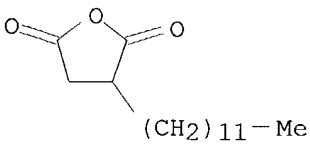
IT **25377-73-5D**, Dodecenylsuccinic anhydride, reaction products with cyclic carbonates and diethanolamine

RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(lubricant basestock; synthetic multifunctional lubricating basestocks containing carbamate and ester functional groups)

RN 25377-73-5 HCAPLUS
CN 2,5-Furandione, 3-(dodecenyl)dihydro- (9CI) (CA INDEX NAME)

CM 1

CRN 2561-85-5
CMF C16 H28 O3



L23 ANSWER 3 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:361555 HCAPLUS
DN 139:229648
ED Entered STN: 13 May 2003
TI Influence of storage temperature on the volatile compounds of young white wines
AU Perez-Coello, M. S.; Gonzalez-Vinas, M. A.; Garcia-Romero, E.; Diaz-Maroto, M. C.; Cabezudo, M. D.
CS Universidad de Castilla-La Mancha, Facultad de Ciencias Quimicas, Departamento de Quimica Analitica y Tecnologia de Alimentos, Universidad de Castilla-La Mancha, Ciudad Real, 13071, Spain
SO Food Control (2003), 14(5), 301-306
CODEN: FOOCEV; ISSN: 0956-7135
PB Elsevier Science B.V.
DT Journal
LA English
CC 17-13 (Food and Feed Chemistry)
AB A total of 38 volatile components from 90 white wines stored under uncontrolled temperature conditions in the marketplace were analyzed. The **composition** of volatiles in the wines changed with storage time, namely, the concentration of isoamyl acetate and Et 4-hydroxybutyrate decreased and the concentration Et lactate, di-Et succinate, Et monosuccinate, and di-Et malate increased. Sensory and chemical changes were less pronounced in wines stored chilled (5 °C), suggesting that chilled storage may be used to increase the shelf life of young white wines.
ST volatile aroma white wine **refrigeration** cold storage
IT Temperature effects, biological
(cold; storage temperature influence on volatile compds. of young white wines)
IT Flavor
Odor and Odorous substances
Refrigeration
(storage temperature influence on volatile compds. of young white wines)
IT Wine
(white; storage temperature influence on volatile compds. of young white wines)
IT 60-12-8, 2-Phenylethanol 79-09-4, Propionic acid, biological studies

79-31-2, Isobutyric acid **96-48-0**, γ-Butyrolactone
97-64-3, Ethyl lactate 98-01-1, Furfural, biological studies 100-51-6, Benzyl alcohol, biological studies 103-45-7, 2-Phenylethyl acetate 105-54-4, Ethyl butanoate 106-32-1, Ethyl caprylate 107-92-6, Butyric acid, biological studies 110-38-3, Ethyl caprate 111-27-3, 1-Hexanol, biological studies 111-35-3, 3-Ethoxypropanol 123-25-1, Diethyl succinate 123-66-0, Ethyl caproate 123-92-2, Isoamyl acetate 124-07-2, Octanoic acid, biological studies 142-62-1, Caproic acid, biological studies 142-92-7, Hexyl acetate 334-48-5, Capric acid 503-74-2, Isovaleric acid 505-10-2, 3-Methylthio-1-propanol 513-86-0 617-35-6, Ethyl pyruvate 818-38-2, Diethyl glutarate 928-96-1, Cis-3-Hexen-1-ol 928-97-2, Trans-3-Hexen-1-ol 999-10-0, Ethyl 4-hydroxybutyrate 1070-34-4, Monoethyl succinate 1917-65-3 5405-41-4, Ethyl 3-hydroxybutyrate 7554-12-3, Diethyl malate 7786-61-0, 4-Vinyl guaiacol 13434-12-3, N-3(Methylbutyl)acetamide 19329-89-6, Isoamyl lactate 36678-05-4, 1,3-Propanediol acetate
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(storage temperature influence on volatile compds. of young white wines)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

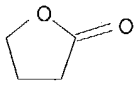
RE

(1) Aldave, L; Shelf life studies of foods and beverages 1993, P923 HCAPLUS
(2) Chisholm, M; American Journal of Enology and Viticulture 1995, V46, P56 HCAPLUS
(3) Cutzach, I; International Journal of Vine and Wine Sciences 1998, V32(2) HCAPLUS
(4) Di Stefano, R; Rivista di Viticoltura e Enologia 1983, V36, P245 HCAPLUS
(5) Edwards, T; American Journal of Enology and Viticulture 1985, V36(2), P118 HCAPLUS
(6) Escudero, A; 6th Symposiun International D'Oenologie 99 1999, P422
(7) Ferreira, V; Zeitschrift fur Lebensmittel-Untersuchung und-Forschung A 1997, V205, P392 HCAPLUS
(8) Gonzalez-Vinas, M; Food Chemistry 1996, V56, P399 HCAPLUS
(9) Gonzalez-Vinas, M; Journal of Food Quality 1998, V21, P285 HCAPLUS
(10) Iso; Guide for the installation of a chamber for sensory analysis 1988, ISO 8589, P9
(11) Iso; Sensory analysis Apparatus Wine-tasting glass 1977, ISO 3591, P3
(12) Lavigne-Cruege, V; 6th Symposium International D'Oenologie 99 1999, P433
(13) Marais, J; The shelf life of foods and beverages 1986, P169 HCAPLUS
(14) Marais, J; Vitis 1979, V18, P254 HCAPLUS
(15) Marais, J; Vitis 1980, V19, P151
(16) Ough, C; American Journal of Enology and Viticulture 1985, V36(1), P18 HCAPLUS
(17) Perez-Coello, M; Zeitschrift fur Lebensmittel-Untersuchung und-Forschung A 1999, V208, P408 HCAPLUS
(18) Ramey, D; Journal of Agricultural and Food Chemistry 1980, V28, P928 HCAPLUS
(19) Rapp, A; Experientia 1986, V42, P873 HCAPLUS
(20) Rapp, A; Frontiers of flavor 1988, P799 HCAPLUS
(21) Rapp, A; Shelf life studies of foods and beverages Chemical, biological, physical and nutritional aspects 1993, P891 HCAPLUS
(22) Rapp, A; The shelf life of foods and beverages 1986, P141 HCAPLUS

IT **96-48-0**, γ-Butyrolactone
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(storage temperature influence on volatile compds. of young white wines)

RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:295407 HCAPLUS
DN 139:35303
ED Entered STN: 17 Apr 2003
TI Analysis of Volatiles in Meat from Iberian Pigs and Lean Pigs after **Refrigeration** and Cooking by Using SPME-GC-MS
AU Estevez, Mario; Morcuende, David; Ventanas, Sonia; Cava, Ramon
CS Tecnologia de los Alimentos Facultad de Veterinaria, Universidad de Extremadura, Caceres, 10071, Spain
SO Journal of Agricultural and Food Chemistry (2003), 51(11), 3429-3435
CODEN: JAFCAU; ISSN: 0021-8561
PB American Chemical Society
DT Journal
LA English
CC 17-1 (Food and Feed Chemistry)
AB The volatile compds. generated in meat from Iberian and lean pigs after four different treatments (raw, **refrigerated**, cooked, and **refrigerated** cooked meat) were analyzed. The different treatments showed different volatile profiles. Me alcs. and ketones (such as 2-ethyl-hexan-1-ol, 2-methyl-butan-1-ol, 3-methyl-butan-1-ol, and 3-hydroxy-butan-2-one) were the most representative in **refrigerated** meat because of the degradation of carbohydrates and proteins together with the Strecker degradation pathway. Lipid-derived volatiles were the most abundant in cooked meat and **refrigerated** cooked meat. Meat from different pig breeds presented different volatile profiles, probably due to different enzymic and oxidative deterioration susceptibility. Otherwise, the fat content and its **compositional** characteristics also played an important role in the generation of volatiles. As compared to samples from lean pigs, muscles from Iberian pigs showed a higher content of heme iron that may have promoted the generation of higher content of total lipid-derived volatiles during the **refrigeration** of cooked meat. Despite that, the formation of volatiles with low thresholds and related to intense rancidity perception likely to be derived from polyunsatd. fatty acids was higher in lean pork than in meat from Iberian pigs. This might be expected to lead to a more intense development of a warmed over flavor during **refrigeration** of cooked samples from lean pigs.
ST volatile detn pork **refrigeration** cooking SPME GC MS
IT Cooking
Flavor
Rancidity
Refrigeration
Volatile substances
(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)
IT Alcohols, biological studies
Aldehydes, biological studies
Carboxylic acids, biological studies
Esters, biological studies
Fatty acids, biological studies
Hydrocarbons, biological studies
Ketones, biological studies

Terpenes, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Fats and Glyceridic oils, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Mass spectrometry
(gas chromatog. combined with; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Gas chromatography
(mass spectrometry combined with; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Lipids, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(neutral; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Food analysis
(of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Lipids, biological studies
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(polar; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Meat
(pork; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT Microextraction
(solid-phase; anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

IT 57-10-3, Hexadecanoic acid, biological studies 57-11-4, Octadecanoic acid, biological studies 60-12-8, 2-Phenylethanol 60-33-3, 9,12-Octadecadienoic acid (9Z,12Z)-, biological studies 64-19-7, Acetic acid, biological studies 66-25-1, Hexanal 71-41-0, Pentan-1-ol, biological studies 75-18-3, Dimethyl sulfide 79-34-5, 1,1,2,2-Tetrachloroethane **96-48-0** 100-52-7, Benzaldehyde, biological studies 104-76-7, 2-Ethylhexan-1-ol 107-92-6, Butanoic acid, biological studies 108-38-3, 1,3-Dimethylbenzene, biological studies 108-88-3, Methylbenzene, biological studies 110-00-9D, Furan, derivs. 110-43-0, Heptan-2-one 110-62-3, Pentanal 110-86-1, Pyridine, biological studies 111-13-7, Octan-2-one 111-27-3, Hexan-1-ol, biological studies 111-70-6, Heptan-1-ol 111-71-7, Heptanal 111-87-5, Octan-1-ol, biological studies 112-05-0, Nonanoic acid 112-31-2, Decanal 112-53-8, Dodecan-1-ol 112-72-1, Tetradecan-1-ol 112-80-1, 9-Octadecenoic acid (9Z)-, biological studies 123-51-3, 3-Methylbutan-1-ol 124-07-2, Octanoic acid, biological studies 124-13-0, Octanal 124-18-5, Decane 124-19-6, Nonanal 137-32-6, 2-Methylbutan-1-ol 138-86-3, Limonene 141-78-6, Acetic acid ethyl ester, biological studies 142-62-1, Hexanoic acid, biological studies 143-07-7, Dodecanoic acid, biological studies 373-49-9 431-03-8, Butane-2,3-dione 463-40-1 506-12-7, Heptadecanoic acid 506-30-9, Eicosanoic acid 506-32-1 513-85-9, Butane-2,3-diol 513-86-0,

3-Hydroxybutan-2-one 544-63-8, Tetradecanoic acid, biological studies 585-25-1, Octane-2,3-dione 638-66-4, Octadecanal 646-04-8, Pent-(E)-2-ene 1576-87-0, Pent-(E)-2-enal 1669-44-9, Oct-3-en-2-one 2548-87-0, Oct-(E)-2-enal 3391-86-4, Oct-1-en-3-ol 3777-69-3, 2-Pentylfuran 3913-81-3, Dec-(E)-2-enal 4313-03-5, Hepta-(E,E)-2,4-dienal 5932-79-6, Nonan-4-ol 6750-03-4, Nona-2,4-dienal 7493-59-6, Undecane-2,3-dione 13475-82-6, 2,2,4,6,6-Pentamethylheptane 18829-55-5, Hept-(E)-2-enal 18829-56-6, Non-(E)-2-enal 25152-83-4, Deca(E,Z)-2,4-dienal 25152-84-5, Deca(E,E)-2,4-dienal 28040-00-8 32839-28-4 53448-07-0, Undec-(E)-2-enal 56700-77-7 68820-35-9, Undec-4-enal, (E)-
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)

RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD

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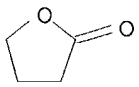
IT **96-48-0**
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(anal. of volatiles in meat from Iberian pigs and lean pigs after **refrigeration** and cooking by using SPME-GC-MS)
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:712314 HCAPLUS
DN 129:333162
ED Entered STN: 10 Nov 1998
TI Polyol and complex esters for use with, in particular, fluorinated **refrigerants**
IN Koistinen, Jari; Rissanen, Kari; Silvennoinen, Laura; Koskimies, Salme
PA Neste Oy, Finland
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10M105-42
ICS C09K005-04; C07C069-67
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9846706	A1	19981022	WO 1998-FI329	19980414
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	FI 9701548	A	19981012	FI 1997-1548	19970411
	FI 9800730	A	19981012	FI 1998-730	19980331
	AU 9868361	A1	19981111	AU 1998-68361	19980414
	EP 973853	A1	20000126	EP 1998-913796	19980414
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI				
	JP 2001526712	T2	20011218	JP 1998-543528	19980414
PRAI	FI 1997-1548	A	19970411		
	FI 1997-1549	A	19970411		
	FI 1998-730	A	19980331		
	WO 1998-FI329	W	19980414		

AB The invention concerns a **refrigerant composition** which comprises a chlorine-free hydrofluorocarbon based **refrigerant** and, mixed with the **refrigerant**, a lubricant comprising a polyol ester. According to the invention the polyol ester comprises an ester of

3-hydroxy-2,2-dimethylpropyl-3-hydroxy-2,2-dimethylpropionate, the carboxylic acid residue of which is derived from a linear or branched C4-18-carboxylic acid or an anhydride thereof, or it is derived from a mixture of linear or branched C4-18-carboxylic acids or anhydrides thereof. The present invention also concerns novel complex ester of 3-hydroxy-2,2-dimethylpropyl-3-hydroxy-2,2-dimethylpropionate, which contain residues of mono- or bivalent carboxylic acids. The novel esters exhibit good solubility in fluorinated hydrocarbons and excellent lubricating properties.

ST polyol complex ester lubricant fluorinated **refrigerant**

IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**fluoro, refrigerants;** polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT **Refrigerants**
(hydrofluorocarbons; polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT Lubricants
Lubricating oils
(polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT 77-85-0, Trimethylolethane 77-99-6 94-96-2, 2-Ethyl-1,3-hexanediol 97-72-3, Isobutyric anhydride 105-08-8, 1,4-Cyclohexanedimethanol **108-30-5**, reactions 110-15-6, Succinic acid, reactions 110-94-1, Glutaric acid 111-14-8, Heptanoic acid 111-16-0, Pimelic acid 111-20-6, Sebacic acid, reactions 115-77-5, reactions 115-84-4 123-99-9, Azelaic acid, reactions 124-04-9, Hexanedioic acid, reactions 124-07-2, Octanoic acid, reactions 126-30-7 141-82-2, Propanedioic acid, reactions 143-07-7, Dodecanoic acid, reactions 144-19-4, 2,2,4-Trimethyl-1,3-pentanediol 144-62-7, Ethanedioic acid, reactions 149-57-5, 2-Ethylhexanoic acid 505-48-6, Octanedioic acid 552-30-7 595-46-0, Dimethylmalonic acid 1115-20-4 54502-37-3, 2-Ethylbutanoic anhydride
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

IT 23144-54-9P 215024-63-8P 215024-65-0P 215024-67-2P 215024-69-4P 215024-71-8P 215024-77-4P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

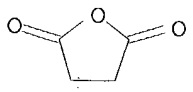
IT 75-37-6, R 152a 359-35-3, R 134 420-46-2, R 143a 430-66-0, R 143 624-72-6, R 152 811-97-2, R 134a
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**refrigerant;** polyol and complex esters for use with, in particular, fluorinated **refrigerants**)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Henkel Corporation; WO 9324587 A1 1993 HCAPLUS
(2) Henkel Corporation; WO 9513333 A1 1998 HCAPLUS
(3) Kao Corporation; EP 0415778 A1 1991 HCAPLUS
(4) Nippon Oil Co Ltd; EP 0435253 B1 1991 HCAPLUS
(5) Nippon Oils & Fats Co Ltd; JP A4164046 1992
(6) Sanken Kako Kk; JP A205179267 1993
(7) Sanken Kako Kk; JP A207216372 1995

IT **108-30-5**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of polyol and complex esters for use with, in particular, fluorinated **refrigerants**)
RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)

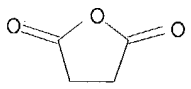


L23 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:712313 HCAPLUS
DN 129:333161
ED Entered STN: 10 Nov 1998
TI Complex esters for use with fluorinated **refrigerants**
IN Ankner, Kjell; Glad, Essi; Aalto, Mikko; Saranpaa, Virpi
PA Neste Oy, Finland
SO PCT Int. Appl., 16 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10M105-42
ICS C09K005-42
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9846705	A1	19981022	WO 1998-FI312	19980408
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	FI 9701548	A	19981012	FI 1997-1548	19970411
	AU 9868347	A1	19981111	AU 1998-68347	19980408
	EP 973852	A1	20000126	EP 1998-913779	19980408
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI				
	JP 2001518965	T2	20011016	JP 1998-543246	19980408
	US 2002036283	A1	20020328	US 2001-978987	20011015
PRAI	FI 1997-1548	A	19970411		
	WO 1998-FI312	W	19980408		
	US 1999-402669	A1	19991008		

AB The invention concerns **refrigerant** compns. which comprise a hydrofluorocarbon based **refrigerant** and, mixed with the **refrigerant**, a polyol ester based lubricant. According to the invention the polyol ester comprises a diol having a strongly sterically hindered hydrogen attached to the carbon in position 2, the diol being esterified with a mixture of mono- and dibasic carboxylic acids. In particular the diol is 2-ethyl-1,3-hexanediol or 1,4-dimethylolcyclohexane. The complex esters used in **refrigerant**

mixts. have good lubricant properties and good solubility in HFC compds.
ST lubricant complex ester fluorinated **refrigerant**
IT Lubricants
Lubricating oils
(complex esters for use as lubricants with fluorinated **refrigerants**)
IT Hydrocarbons, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**fluoro, refrigerants**; complex esters for use as lubricants with fluorinated **refrigerants**)
IT **Refrigerants**
(hydrofluorocarbons; complex esters for use as lubricants with fluorinated **refrigerants**)
IT 63468-12-2P 215024-32-1P 215024-34-3P 215024-36-5P 215024-38-7P 215024-40-1P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(complex esters for use with fluorinated **refrigerants**)
IT 77-85-0, Trimethylolethane 77-99-6 94-96-2, 2-Ethyl-1,3-hexanediol 105-08-8, 1,4-Cyclohexanedimethanol **108-30-5**, reactions 110-15-6, Succinic acid, reactions 110-94-1, Glutaric acid 111-16-0, Pimelic acid 111-20-6, Sebacic acid, reactions 115-77-5, reactions 115-84-4 123-99-9, Azelaic acid, reactions 124-04-9, Hexanedioic acid, reactions 126-30-7 141-82-2, Propanedioic acid, reactions 144-19-4 144-62-7, Ethanedioic acid, reactions 505-48-6, Octanedioic acid 595-46-0, Dimethylmalonic acid 1115-20-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of complex esters for use as lubricants with fluorinated **refrigerants**)
IT 75-37-6, R 152a 359-35-3, R 134 420-46-2, R 143a 430-66-0, R 143 624-72-6, R 152 811-97-2, R 134a
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(**refrigerant**; complex esters for use as lubricants with fluorinated **refrigerants**)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Henkel Corporation; WO 9324587 A1 1993 HCAPLUS
(2) Henkel Corporation; WO 9513333 A1 1995 HCAPLUS
(3) Kao Corp; JP 3217493 A 1991
(4) Kao Corp; JP A6009978 1994
(5) Kao Corporation; EP 0415778 A1 1991 HCAPLUS
(6) Nippon Oil Co Ltd; EP 0435253 A1 1991 HCAPLUS
(7) Nippon Oils & Fats Co Ltd; JP 6041559 A 1994
IT **108-30-5**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of complex esters for use as lubricants with fluorinated **refrigerants**)
RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:319093 HCAPLUS
DN 124:347925
ED Entered STN: 01 Jun 1996
TI Lubricant composition with good seal compatibility
IN Holt, David Gary Lawton; Vernon, Patrick Desmond Fraser
PA Exxon Research and Engineering Co., USA
SO Brit. UK Pat. Appl., 14 pp.
CODEN: BAXXDU
DT Patent
LA English
IC ICM C10M107-28
ICI C10M107-28, C10M133-04, C10M135-02, C10M135-20, C10M137-06, C10M145-14, C10M149-14, C10M155-02, C10M159-24; C10N010-04, C10N020-02, C10N020-04, C10N030-00, C10N030-04, C10N040-25
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2292747	A1	19960306	GB 1994-17220	19940826
	GB 2292747	B2	19980916		
	CA 2156775	AA	19960227	CA 1995-2156775	19950823
PRAI	GB 1994-17220		19940826		

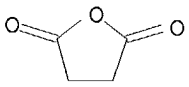
AB An automotive crankcase lubricant containing a polar dispersant, e.g. having amide, imide or amine groups, is rendered compatible with **fluorocarbon** and nitrile material used in engine seals by using a base oil which contains 2-50 weight% of a copolymer of ≥1 C10-16 α-olefins and ≥1 dicarboxylic acid esters of C3-8 monoalkyl alcs., the copolymer having a weight average mol.-weight 500-3000 and a kinematic viscosity 3-100 cSt (mm2/s) at 100°. The balance of the base oil may be a polyalphaolefin. The exemplified dispersant is a polyisobutenyl succinic anhydride-polyamine reaction product.
ST lubricant compn crankcase seal compatibility
IT Alkenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(C10-16 α-, polymers, with α,β-unsatd. dicarboxylic Bu esters, base oils containing; lubricant compns. with good seal compatibility)
IT Lubricating oils
(crankcase, containing base oils of copolymers of α-olefins and dicarboxylic acid C3-8 esters with good seal compatibility)
IT Carboxylic acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(di-, α,β-unsatd., esters, polymers with C10-16-α-olefins, base oils containing; lubricant compns. with good seal compatibility)
IT Polyamines
RL: NUU (Other use, unclassified); USES (Uses)
(polyethylene-, reaction products with polyisobutenylsuccinic anhydride; dispersants for lubricant compns. with good seal compatibility)
IT Alkenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(α-, polymers, base oils containing; lubricant compns. with good seal compatibility)
IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs., reaction

products with polyamines
RL: NUU (Other use, unclassified); USES (Uses)
(dispersants; lubricant compns. with good seal **compatibility**)

IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs., reaction products with polyamines
RL: NUU (Other use, unclassified); USES (Uses)
(dispersants; lubricant compns. with good seal **compatibility**)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:498384 HCAPLUS

DN 122:243925

ED Entered STN: 20 Apr 1995

TI Dispersants for **fluoroelastomer**-compatible crankcase and drivetrain lubricating oils

IN Slama, Francis J.; Vettel, Paula Roach

PA Ethyl Corp., USA

SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2

DT Patent

LA English

IC ICM C10M149-00
ICS C10M155-00

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 39

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9500607	A1	19950105	WO 1994-US7242	19940624
	W: AU, CA, JP, NZ				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5454962	A	19951003	US 1993-82991	19930625
	CA 2165973	AA	19950105	CA 1994-2165973	19940624
	AU 9472138	A1	19950117	AU 1994-72138	19940624
	AU 675865	B2	19970220		
	EP 705322	A1	19960410	EP 1994-921395	19940624
	EP 705322	B1	19980805		
	R: BE, DE, ES, FR, GB, IT				
	JP 08512068	T2	19961217	JP 1994-503128	19940624
PRAI	US 1993-82991	A	19930625		
	WO 1994-US7242	W	19940624		

AB Lubricating oil dispersants that impart **fluoroelastomer** seal compatibility properties to the base oil are prepared by reacting aminoguanidine or a basic salt of aminoguanidine with a hydrocarbyl-substituted succinic acid or anhydride in a mol ratio of from about 0.4 to about 1.2 mol aminoguanidine (or basic salt) per mol of the succinic acid (or anhydride). The product, which can be borated, is characterized by IR peaks at 1590 cm-1 and (optionally) at 1725 cm-1, depending on the mol ratio of the reactants. An additive, with a 1.1:1 (mol ratio) aminoguanidine-succinic acid derivative, was prepared in two stages

by: (1) reaction of polyisobutenylsuccinic anhydride (prepared from polyisobutylene with number average mol. weight .apprx.2060) with aminoguanidine bicarbonate in a neutral base oil at 170° for 2 h with stirring, followed by (2) boration with boric acid at 160° for 2 h, to yield a product containing 0.2 weight% B.

ST **fluoroelastomer** compatible lubricating oil dispersant; polyisobutenylsuccinic anhydride aminoguanidine lubricating oil dispersant; borated lubricant dispersant **fluoroelastomer** compatibility; drive train lubricant **fluoro** rubber seal

IT Seals (mechanical)
(**fluoroelastomer**; aminoguanidine-succinic acid-based dispersants for **fluoroelastomer**-compatible crankcase and drive-train lubricating oils)

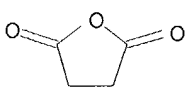
IT Lubricating oil additives
(dispersants, aminoguanidine-succinic acid-based dispersants for **fluoroelastomer**-compatible crankcase and drive-train lubricating oils)

IT Rubber, synthetic
RL: DEV (Device component use); MSC (Miscellaneous); USES (Uses)
(**fluoro**, aminoguanidine-succinic acid-based dispersants for **fluoroelastomer**-compatible crankcase and drive-train lubricating oils)

IT 79-17-4DP, Aminoguanidine, basic salts, reaction products with hydrocarbyl-substituted succinic acid 79-17-4DP, Aminoguanidine, reaction products with hydrocarbyl-substituted succinic acid **108-30-5DP**, Succinic anhydride, polyisobutenyl derivs., reaction products with aminoguanidine bicarbonate, borated 110-15-6DP, Succinic acid, hydrocarbyl-substituted, reaction products with aminoguanidine or aminoguanidine salts 2582-30-1DP, Aminoguanidine bicarbonate, reaction products with polyisobutenyl-substituted succinic anhydride, borated 10043-35-3DP, Boric acid (H3BO3), reaction products with aminoguanidine-hydrocarbyl substituted succinic acid or anhydride
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(aminoguanidine-succinic acid-based dispersants for **fluoroelastomer-compatible** crankcase and drive-train lubricating oils)

IT **108-30-5DP**, Succinic anhydride, polyisobutenyl derivs., reaction products with aminoguanidine bicarbonate, borated
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(aminoguanidine-succinic acid-based dispersants for **fluoroelastomer-compatible** crankcase and drive-train lubricating oils)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)

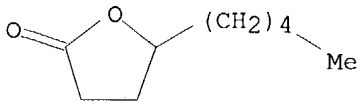


L23 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:485146 HCAPLUS
DN 122:238211

ED Entered STN: 13 Apr 1995
TI Bread crumb flavor: influence of wheat variety and breadmaking process
AU Galey, Christine; Potus, Jacques; Drapron, Roger; Poiffait, Annie; Bar, Christine; Fischer, Jacky; Giampaoli, Pierre
CS Conservatoire national des arts et metiers, Paris, 75141, Fr.
SO Sciences des Aliments (1994), 14(5), 643-53
CODEN: SCALDC; ISSN: 0240-8813
DT Journal
LA French
CC 17-11 (Food and Feed Chemistry)
AB The influence of wheat varieties and fermentation conditions (i.e. durations of initial and final fermentation, storage of the dough at +1° for 18 h) on the volatile compds. content and on the odor of bread crumb were studied in an experiment involving breads made according to 3 reference methods with the flours from two varieties of wheat (Recital and Soissons). Volatile compds. were analyzed by gas chromatog. and the odor of bread crumbs was rated by 30 subjects. Correlations were found between the compds. and the results of the sensory evaluation. The content in volatile compds. of the bread crumb and the strength of the olfactory flavor called "spicy" were affected by the **refrigeration** of doughs under controlled growth. Bread crumb made from flour of Recital variety was richer in volatile compds. than those made with the flour from Soissons variety. Hypotheses are proposed which might explain these differences.
ST bread crumb flavor wheat variety breadmaking; fermn condition bread crumb flavor; dough **refrigeration** bread crumb flavor
IT Alcohols, formation (nonpreparative)
Maillard reaction products
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bread crumb **composition** response to wheat varieties and fermentation conditions)
IT Flavor
Odor and Odorous substances
(bread crumb flavor response to wheat variety and breadmaking process)
IT Dough
(volatile compds. of bread crumb response to **refrigeration** of doughs)
IT Bread
(crumb, bread crumb flavor response to wheat variety and breadmaking process)
IT 60-12-8, 2-Phenylethanol 64-17-5, Ethanol, formation (nonpreparative) 66-25-1, Hexanal 67-63-0, 2-Propanol, formation (nonpreparative) 67-64-1, Acetone, formation (nonpreparative) 71-41-0, 1-Pentanol, formation (nonpreparative) 75-07-0, Acetaldehyde, formation (nonpreparative) 78-83-1, 2-Methyl-1-propanol, formation (nonpreparative) 98-00-0, Furfuryl alcohol 98-01-1, Furfural, formation (nonpreparative) 100-51-6, Benzyl alcohol, formation (nonpreparative) 100-52-7, Benzaldehyde, formation (nonpreparative) 103-45-7 **104-61-0**, γ-Nonalactone 108-88-3, Toluene, formation (nonpreparative) 109-08-0, 2-Methylpyrazine 111-27-3, 1-Hexanol, formation (nonpreparative) 111-35-3, 3-Ethoxypropanol 111-76-2, 2-ButoxyEthanol 112-34-5, 2-(2-Butoxyethoxy)Ethanol 123-51-3, 3-Methyl-1-butanol 137-32-6, 2-Methyl-1-butanol 141-78-6, Ethyl acetate, formation (nonpreparative) 431-03-8, 2,3-Butanedione 513-86-0, 3-Hydroxy-2-Butanone 620-02-0, 5-Methylfurfural 1192-62-7, 2-Acetylfuran
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bread crumb **composition** response to wheat varieties and fermentation

conditions)
IT **104-61-0**, γ-Nonalactone
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(bread crumb **composition** response to wheat varieties and fermentation conditions)
RN 104-61-0 HCAPLUS
CN 2(3H)-Furanone, dihydro-5-pentyl- (8CI, 9CI) (CA INDEX NAME)

Currently available stereo shown.



L23 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:459465 HCAPLUS
DN 122:189758
ED Entered STN: 01 Apr 1995
TI Freon-resistant polyolefin laminates with good adhesion to polyurethane foams
IN Kondo, Haruhiko; Masubuchi, Juko; Imaizumi, Mitsuhiro
PA Showa Denko Kk, Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B32B027-32
ICA C08L023-00
CC 38-3 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06246885	A2	19940906	JP 1993-35664	19930224
PRAI	JP 1993-35664		19930224		

AB The title laminates, especially useful for inner boxes of **refrigerators**, comprise (a) a propylene polymer layer (e.g., of ethylene-propylene copolymer, polypropylene), (b) a propylene polymer **composition** layer (e.g., of talc- or CaCO3-containing ethylene-propylene block copolymer), and (c) an ethylene copolymer **composition** layer (e.g., Tohmide-containing ethylene-maleic anhydride-Me acrylate copolymer).
ST Freon resistance polyolefin laminate **refrigerator**; ethylene propylene copolymer laminate **refrigerator**; polyurethane adhesion polyolefin laminate **refrigerator**; methyl acrylate copolymer laminate **refrigerator**
IT Ionomers
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
IT Plastics, laminated
Polyamides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)
IT **Refrigerating** apparatus

(inner boxes of; Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

IT Alkenes, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(polymers, Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

IT 9003-07-0, Polypropylene 9010-79-1, Ethylene-propylene copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

IT 9002-88-4, Polyethylene 25608-26-8, Ethylene-methacrylic acid copolymer sodium salt 28064-24-6, Ethylene-maleic anhydride-vinyl acetate copolymer 85967-80-2, Ethylene-maleic anhydride-methyl methacrylate copolymer 88450-35-5, Ethylene-maleic anhydride-methyl acrylate copolymer **104790-93-4** 106565-43-9, Ethylene-propylene block copolymer
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

IT 471-34-1, Calcium carbonate, uses 14807-96-6, Talc, uses 61513-08-4, Tohmide 1310 90881-94-0, Tohmide 1350 151354-71-1, Tohmide 560
RL: MOA (Modifier or additive use); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

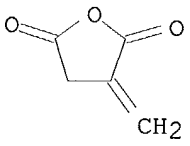
IT **104790-93-4**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(Freon-resistant polyolefin laminates with good adhesion to polyurethane foams)

RN 104790-93-4 HCAPLUS

CN Acetic acid ethenyl ester, polymer with dihydro-3-methylene-2,5-furandione and ethene (9CI) (CA INDEX NAME)

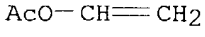
CM 1

CRN 2170-03-8
CMF C5 H4 O3



CM 2

CRN 108-05-4
CMF C4 H6 O2



CM 3

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

L23 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:227377 HCAPLUS
DN 122:60003
ED Entered STN: 06 Dec 1994
TI Chlorine-free lubricating oils having modified high molecular weight succinimides
IN Harrison, James J.; Ruhe, William R, Jr.; Morris, Jack E.; Cazin, Jacques
PA Chevron Research and Technology Co., USA
SO U.S., 18 pp. Cont.-in-part of U.S. Ser. No. 28,433.
CODEN: USXXAM
DT Patent
LA English
IC ICM C10M133-44
NCL 252051500A
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5356552	A	19941018	US 1993-135095	19931012
	US 5334321	A	19940802	US 1993-28433	19930309
	EP 648830	A2	19950419	EP 1994-305087	19940712
	EP 648830	A3	19961120		
	R: DE, FR, GB				
	JP 07150166	A2	19950613	JP 1994-167587	19940720
	JP 2899524	B2	19990602		
	CA 2133511	AA	19950413	CA 1994-2133511	19941003
	CA 2133511	C	20010130		
PRAI	US 1993-28433	A2	19930309		
	US 1993-135095	A	19931012		

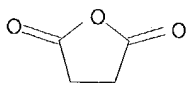
AB Alkenyl or alkyl succinimide additives which are the reaction product of a high mol.-weight alkenyl- or alkyl-substituted succinic anhydride and a polyalkylene polyamine having an average of greater than 4 nitrogen atoms per mol, wherein the reaction product is post-treated with a cyclic carbonate, are compatible with **fluoroelastomer** engine seals and, for concentration levels at which **fluoroelastomer** seal compatibility is achieved, possess improved dispersancy and/or detergency properties when employed in chlorine-free lubricating oils.
ST chlorine free lubricating oil modified succinimide
IT Lubricating oil additives
(detergents-dispersants, compatible with **fluoroelastomer** seals for chlorine-free lubricating oils)
IT **108-30-5DP**, Succinic anhydride, poly(iso)butenyl derivs., reaction products with polyamines and ethylene carbonate 111-40-0DP, Diethylenetriamine, reaction products with poly(iso)butenylsuccinic anhydride and ethylene carbonate 112-24-3DP, Triethylenetetramine, reaction products with poly(iso)butenylsuccinic anhydride and ethylene

carbonate 143637-18-7DP, Polyamine HPA-X, reaction products with poly(iso)butenylsuccinic anhydride and ethylene carbonate
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(detergents-dispersants; for chlorine-free lubricating oils and **compatible** with **fluoroelastomer** seals)

IT 108-31-6, Maleic anhydride, reactions 9003-28-5, Parapol 1300
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of detergent-dispersant additives for chlorine-free lubricating oils and compatible with **fluoroelastomer** seals)

IT **108-30-5DP**, Succinic anhydride, poly(iso)butenyl derivs., reaction products with polyamines and ethylene carbonate
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(detergents-dispersants; for chlorine-free lubricating oils and **compatible** with **fluoroelastomer** seals)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



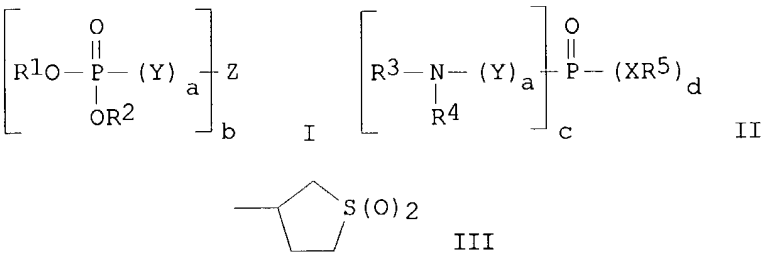
L23 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:21394 HCAPLUS
Correction of: 1992:534329
DN 122:13529
Correction of: 117:134329
ED Entered STN: 08 Nov 1994
TI Phosphorus-containing **compositions** for **refrigeration** systems
IN Jolley, Scott Ted; Lange, Richard Michael; Koch, Frederick William
PA Lubrizol Corp., USA
SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10M105-00
ICS C10M105-74; C10M111-04; C10M169-04; C09K005-04
ICI C10M105-00, C10M105-32, C10M105-52, C10M105-74; C10M111-04, C10M105-52, C10M105-74, C10M107-34; C10M169-04, C10M105-52, C10M129-68, C10M137-04, C10M137-12, C10M137-14; C10N040-30
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9118073	A1	19911128	WO 1991-US3300	19910510
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
	CA 2060201	AA	19911118	CA 1991-2060201	19910510
	AU 9178831	A1	19911210	AU 1991-78831	19910510
	AU 656895	B2	19950223		
	EP 483331	A1	19920506	EP 1991-909908	19910510
	EP 483331	B1	19950118		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				

	JP 05500388	T2	19930128	JP 1991-509871	19910510
	ES 2069888	T3	19950516	ES 1991-909908	19910510
	US 5405546	A	19950411	US 1993-111227	19930824
PRAI	US 1990-525358	A	19900517		
	WO 1991-US3300	A	19910510		
	US 1992-824739	B1	19920121		

OS MARPAT 122:13529

GI



I II

III

AB The compns. contain ≥1 compound of I or II, where R1 and R2 are each independently hydrocarbyl or hydrocarbyloxyalkylene groups and R1 and R2 taken together have a total of 2-24 C atoms excluding any oxyalkylene C atoms; a is 0 or 1; b is 1 or 2; c is 1, 2 or 3; d is 0, 1 or 2; provided that c + d = 3. When b is 1, Z is selected from -R5, -N(H)R5, -C(X)R5, -CN, -S(O)R5, -S(O)2N(R3)(R4), and III; when b is 2, Z is -N(R5); X is O or S; Y is a C1-20 hydrocarbylene group; R5 is a C1-18 hydrocarbyl group; R3 and R4 are each independently H or a C1-24 hydrocarbyl group or taken together form a heterocyclic ring. The P-containing compns. are suitable as lubricants compatible with **fluorocarbon refrigeration** liqs. in **refrigerators** and in air conditioners including home, automobile, and industrial air conditioners. The compns. are used with a F-containing C1-2 hydrocarbon as the major component. A suitable **refrigerant** contains 1,1,1,2-tetrafluoroethane 90 wt% and the reaction product of polypropylene tetramer with dihydrogen phosphite and di-tert.-butylperoxide 10 wt%.

ST **fluorocarbon refrigerant** lubricant phosphorus compd

IT Lubricating oil additives
(for **fluorocarbon refrigerants**)

IT Alcohols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(C10-12, ethoxylated, esters, with acetic acid; lubricant, for **fluorocarbon refrigerant**)

IT Alcohols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(C12-13, ethoxylated, reaction products; lubricant, for **fluorocarbon refrigerant**)

IT Fatty acids, uses
RL: NUU (Other use, unclassified); USES (Uses)
(C12-14-neo-, lubricant, for **fluorocarbon refrigerant**)

IT **Refrigeration**
(agents, phosphorus-containing, for **fluorocarbon refrigerants**)

IT 9037-24-5, Amberlyst 15
RL: CAT (Catalyst use); USES (Uses)

(catalyst, for preparation of lubricant for **fluorocarbon refrigerant**)

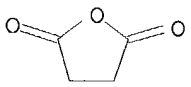
IT 25322-68-3D, mono-C12-14 alkyl ethers
RL: USES (Uses)
(lubricant for **fluorocarbon refrigerant**)

IT 50-00-0D, Formaldehyde, reaction products with dibutylphosphite and sodium hydroxide and 3-sulfolene 50-70-4D, D-Glucitol, reaction products 56-81-5D, 1,2,3-Propanetriol, reaction products 64-18-6D, Formic acid, reaction products with Alfonic 1312-60 71-36-3D, 1-Butanol, reaction products 76-05-1D, reaction products with Alfonic 1312-60 76-39-1D, reaction products with Sandopan DTC 77-79-2D, reaction products with dibutylphosphite and formaldehyde 77-99-6D, reaction products 78-24-0D, reaction products 107-21-1D, 1,2-Ethanediol, reaction products 108-24-7D, reaction products with Neodol 23-6.5 **108-30-5D**, reaction products 108-31-6D, 2,5-Furandione, reaction products 110-15-6D, Butanedioic acid, esters with Neodol 23-6.5 111-46-6D, reaction products 112-70-9D, 1-Tridecanol, reaction products with cyanoacetic acid 124-04-9D, Hexanedioic acid, reaction products 126-58-9D, reaction products 149-57-5D, reaction products 334-48-5D, Decanoic acid, reaction products with 2-methyl-2-nitropropanol 372-09-8D, reaction products with tridecyl alc. 546-68-9D, reaction products 625-45-6D, esters with Neodol 23-6.5 6842-15-5D, reaction products with dihydrgen phosphite 15460-71-6D, reaction products with polypropylene 26952-21-6D, Isooctanol, reaction products 33113-10-9D, Neoheptanoic acid, reaction products 56090-54-1D, Triglycerol, reaction products 61757-59-3D, Sandopan DTC, reaction products with 2-methyl2-nitropropanol 130164-80-6D, reaction products 130164-82-8D, reaction products 141262-20-6D, reaction products
RL: USES (Uses)
(lubricant, for **fluorocarbon refrigerant**)

IT 811-97-2 25322-69-4
RL: USES (Uses)
(**refrigerant**, lubricant for)

IT **108-30-5D**, reaction products
RL: USES (Uses)
(lubricant, for **fluorocarbon refrigerant**)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 13 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:459823 HCAPLUS
DN 121:59823
ED Entered STN: 06 Aug 1994
TI **Fluoropolymer**- and compatible acrylic polymer-containing coatings
IN Watanabe, Masaharu; Mototani, Shigeo; Hirohata, Hatsuo
PA Daicel Chem, Japan; Dainichi Kemikaru Kagaku Kk
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

IC ICM C09D127-12
ICS C09D133-14; C09D201-06
CC 42-10 (Coatings, Inks, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06025592	A2	19940201	JP 1992-207563	19920709
	JP 3287878	B2	20020604		
PRAI	JP 1992-207563		19920709		

AB Title coating, having good soil, scratch, and weather resistance, comprise 5-95% OH-containing **fluoropolymers**, 5-95% C3-8 lactone-modified acrylic polymers with OH value 5-100 and weight-average mol. weight 5,000-300,000, and OH-reactive hardeners. Mixts. of 2-8:2-8 Lumiflon LF 200 and Placcel FM 1-Me methacrylate-2-ethylhexyl acrylate copolymer showed complete miscibility.

ST **fluoropolymer** compatibility lactone acrylic polymer; soil resistance acrylic **fluoro** polyurethane; weather resistance acrylic **fluoro** polyurethane; scratch resistance acrylic **fluoro** polyurethane

IT Urethane polymers, preparation
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylic, fluorine-containing, coatings, antisoiling, scratch- and weather-resistant)

IT **Fluoropolymers**
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylic-polyurethane-, coatings, antisoiling, scratch- and weather-resistant)

IT Coating materials
(antisoiling, scratch-resistant, hydroxy-containing **fluoropolymer**-, compatible lactone acrylic polymer- and hardener-containing)

IT Urethane polymers, preparation
RL: PREP (Preparation)
(fluorine-containing, acrylic, coatings, antisoiling, scratch- and weather-resistant)

IT **Fluoropolymers**
RL: USES (Uses)
(polyurethane-, acrylic, coatings, antisoiling, scratch- and weather-resistant)

IT 156452-28-7 156452-29-8 156452-30-1 156452-31-2 156479-71-9 156479-72-0
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings, antisoiling, scratch- and weather-resistant)

IT 156452-24-3 **156452-25-4** 156452-26-5 156452-27-6 156479-69-5 156479-70-8
RL: USES (Uses)
(**compatible** to hydroxy-containing **fluoropolymers**, for coatings)

IT 93615-58-8, Lumiflon LF 200 155076-37-2, Lumiflon LF 502
RL: USES (Uses)
(lactone-containing acrylic polymers compatible with, for coatings)

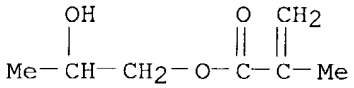
IT **156452-25-4**
RL: USES (Uses)
(**compatible** to hydroxy-containing **fluoropolymers**, for coatings)

RN 156452-25-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxypropyl ester, polymer with dihydro-2(3H)-furanone, 1-methylethyl 2-propenoate and methyl

2-methyl-2-propenoate (9CI) (CA INDEX NAME)

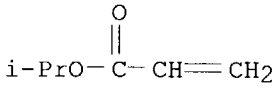
CM 1

CRN 923-26-2
CMF C7 H12 O3



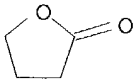
CM 2

CRN 689-12-3
CMF C6 H10 O2



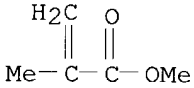
CM 3

CRN 96-48-0
CMF C4 H6 O2



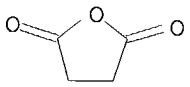
CM 4

CRN 80-62-6
CMF C5 H8 O2



L23 ANSWER 14 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:499412 HCAPLUS
DN 119:99412
ED Entered STN: 04 Sep 1993
TI Lubricating compositions having improved compatibility with **fluorocarbon** seals
AU Anon.
CS UK

SO Research Disclosure (1993), 349, 354
CODEN: RSDSBB; ISSN: 0374-4353
DT Journal
LA English
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 39
AB Carboxylic anhydride-containing materials are used as compatibilizing agents to counteract the deleterious effects of lubricating oil additives on elastomeric properties of seals in crankcase engines. Hydrocarbyl-substituted carboxylic acids and anhydrides, especially polyalkenylsuccinic anhydrides, and particularly polyisobutenylsuccinic anhydrides, were preferred.
ST crankcase oil elastomeric seal compatibilizing agent; hydrocarbyl substituted carboxylic anhydride compatibilizing agent; **fluoropolymer** seal lubricating oil compatibilizing agent; polyalkenylsuccinic anhydride compatibilizing agent
IT Lubricating oil additives
(compatibilizing agents, for operation with **fluoropolymer** seals)
IT Gaskets
Sealing compositions
(**fluoropolymer**, compatibility of crankcase lubricating oils with, agents for)
IT **Fluoropolymers**
RL: USES (Uses)
(sealing materials, compatibility of crankcase lubricating oils with, agents for)
IT Lubricating oils
(crankcase, compatibility of, with elastomeric **fluoropolymer** seals)
IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs.
RL: USES (Uses)
(**compatibilizing** agents, for crankcase lubricating oils with **fluoropolymer** seals)
IT **108-30-5D**, Succinic anhydride, polyisobutenyl derivs.
RL: USES (Uses)
(**compatibilizing** agents, for crankcase lubricating oils with **fluoropolymer** seals)
RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)

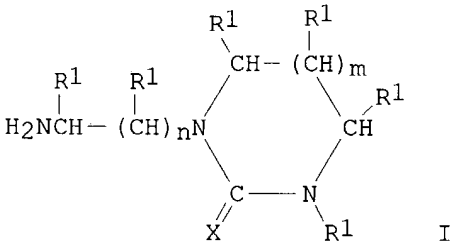


L23 ANSWER 15 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:431361 HCAPLUS
DN 119:31361
ED Entered STN: 24 Jul 1993
TI Lubricating oil dispersants-sludge inhibitors, prepared from acylated polyolefin reaction products with amine-substituted imidazolidones, for improved compatibility with Viton seals.
IN Migdal, Cyril A.; Nalesnik, Theodore E.
PA Texaco Inc., USA
SO U.S., 7 pp.

CODEN: USXXAM
DT Patent
LA English
IC ICM C10M145-10
NCL 252047000
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 39
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5188745	A	19930223	US 1991-812485	19911223
	EP 549196	A1	19930630	EP 1992-311222	19921209
	EP 549196	B1	19961023		
	R: BE, DE, FR, GB, IT, NL				
PRAI	US 1991-812485		19911223		

GI



I

AB An additive to impart elastomer seal compatibility is prepared by reacting an olefin copolymer, of mol. weight 5500-500,000, containing ≥1 olefinic carboxylic acid acylating agent, with an amine-substituted imidizolidone compound of structure I (R1 = h or branched or linear C1-24-alkyl, alkenyl, alkoxyl, aralkyl, or alkaryl; n = 0-12; m = 0-3; X = O or S). The olefin copolymer is prepared from C2H4 15-80, a C3-10-α-monoolefin 20-85, and (optionally) a polyene chosen from non-conjugated dienes or trienes 0-15 mol% units. A Viton seal-compatible additive, prepared from ethylene-propylene copolymer (.apprx.80,000 number average mol. weight), containing 0.8 weight% maleic anhydride (prepared by grafting), by reaction with N-(2-aminoethyl)imidazolidone, showed high effective dispersancy properties and sludge inhibition when present at 1.20 weight% treating level.

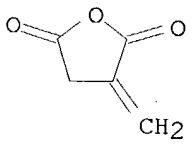
ST **fluororubber** seal compatibility lubricating oil; lubricating oil sludge varnish dispersant; polyolefin imidazolidone lubricating oil additive; Viton seal compatibility lubricating oil

IT Alkenes, polymers
RL: USES (Uses)
(C3-10 α-, with ethylene and polyenes, acylated, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)

IT Lubricating oil additives
(dispersants-varnish inhibitors, acylated polyolefin reaction products with amine-substituted imidazolidones, for improved compatibility with **fluororubber** seals)

IT Rubber, synthetic
RL: USES (Uses)
(hexafluoropropene-vinylidene fluoride, seal, improved lubricating oil

compatibility with, dispersant-sludge inhibitor additives for)
IT Alkadienes
RL: USES (Uses)
(nonconjugated, polymers, polymers with alkenes, acylated, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
IT Lubricating oil additives
(sludge inhibitors, acylated polyolefin reaction products with amine-substituted imidazolidones, for improved compatibility with **fluororubber** seals)
IT Alkenes, polymers
RL: USES (Uses)
(trienic, polymers with alkenes, acylated, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
IT Carboxylic acids, polymers
RL: USES (Uses)
(unsatd., graft polymers with polyolefins, reaction products with amine-substituted imidazolidones, lubricating oil dispersants-sludge inhibitors)
IT 74-85-1D, Ethylene, polymers with C3-10-α-olefins and polyenes, acylated, reaction products with amine-substituted imidazolidones
RL: USES (Uses)
(lubricating oil dispersants-sludge inhibitors)
IT 108-31-6D, Maleic anhydride, reaction products with polyolefins and amine-substituted imidazolidone **2170-03-8D**, Itaconic anhydride, reaction products with polyolefins and amine-substituted imidazolidone 6281-42-1D, reaction products with acylated polyolefins 9010-79-1D, Ethylene-propylene copolymer, reaction products with maleic anhydride and amine-substituted imidazolidones
RL: USES (Uses)
(lubricating oil dispersants-sludge inhibitors, for improved **compatibility** with **fluororubber** seals)
IT **2170-03-8D**, Itaconic anhydride, reaction products with polyolefins and amine-substituted imidazolidone
RL: USES (Uses)
(lubricating oil dispersants-sludge inhibitors, for improved **compatibility** with **fluororubber** seals)
RN 2170-03-8 HCAPLUS
CN 2,5-Furandione, dihydro-3-methylene- (9CI) (CA INDEX NAME)



L23 ANSWER 16 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:534329 HCAPLUS
DN 117:134329
ED Entered STN: 04 Oct 1992
TI Phosphorus-containing **compositions** for **refrigeration** systems
IN Jolley, Scott Ted; Lange, Richard Michael; Koch, Frederick William
PA Lubrizol Corp., USA

SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10M105-00
ICS C10M105-74; C10M111-04; C10M169-04; C09K005-04
ICI C10M105-00, C10M105-32, C10M105-52, C10M105-74; C10M111-04, C10M105-52, C10M105-74, C10M107-34; C10M169-04, C10M105-52, C10M129-68, C10M137-04, C10M137-12, C10M137-14; C10N040-30
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9118073 A1		19911128	WO 1991-US3300	19910510
	W: AU, CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
PRAI	US 1990-525358		19900517		

OS MARPAT 117:134329
AB The compns. contain ≥1 compound of I or II, where R1 and R2 are each independently hydrocarbyl or hydrocarbyloxyalkylene groups and R1 and R2 taken together have a total of 2-24 C atoms excluding any oxyalkylene C atoms; a is 0 or 1; b is 1 or 2; c is 1, 2, or 3; d is 0, 1, or 2, provided that c + d = 3. If b is 1, Z is selected from among -R5, -N(H)R5, -C(X)R5, -CN, -S(O)R5, -S(O)2R5, -S(O)2N(R3)(R4), and III; if b is 2, Z is -N(R5); X is O or S; Y is a hydrocarbylene group having 1-20 C atoms; R3 and R4 are each independently H or a hydrocarbyl group having 1-24 C atoms, or R3 and R4 taken together form a heterocyclic ring. The P-containing compns. are suitable as lubricants compatible with liquid **fluorocarbon refrigeration** liqs. in **refrigerators** and in air conditioners including home, automobile, and industrial air conditioners. The compns. are used with a F-containing C1-2 hydrocarbon as the major component. A suitable **refrigerant** contains 1,1,1,2-tetrafluoroethane 90 weight% and the reaction product of polypropylene tetramer with dihydrogen phosphite and di-tert-butylperoxide 10 weight%.
ST **fluorocarbon refrigerant** lubricant phosphorus compd;
refrigerant fluorocarbon lubricant phosphorus compd;
lubricant **fluorocarbon refrigerant** phosphorus compd;
phosphorus compd **fluorocarbon refrigerant** lubricants
IT Lubricating oil additives
(for **fluorocarbon refrigerants**)
IT Alcohols, compounds
RL: USES (Uses)
(C10-12, ethoxylated, esters, with acetic acid, lubricant for **fluorocarbon refrigerant**)
IT Alcohols, compounds
RL: USES (Uses)
(C12-13, ethoxylated, reaction products, lubricant for **fluorocarbon refrigerant**)
IT Fatty acids, uses
RL: USES (Uses)
(C12-14-neo-, lubricant, for **fluorocarbon refrigerant**)
IT **Refrigeration**
(agents, phosphorus-containing, for **fluorocarbon refrigerants**)
IT 9037-24-5, Amberlyst 15
RL: CAT (Catalyst use); USES (Uses)
(catalyst, for preparation of lubricant for **fluorocarbon**

refrigerant)

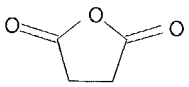
IT 25322-68-3D, mono-C12-14 alkyl ethers
RL: USES (Uses)
(lubricant for **fluorocarbon refrigerant**)

IT 50-00-0D, Formaldehyde, reaction products with dibutylphosphite and sodium hydroxide and 3-sulfolene 50-70-4D, D-Glucitol, reaction products 56-81-5D, 1,2,3-Propanetriol, reaction products 64-18-6D, Formic acid, reaction products with Alfonic 1312-60 71-36-3D, 1-Butanol, reaction products 76-05-1D, Trifluoroacetic acid, reaction products with Alfonic 1412-60 76-39-1D, reaction products with Sandopan DTC 77-79-2D, reaction products with dibutylphosphite and formaldehyde 77-99-6D, reaction products 78-24-0D, reaction products 107-21-1D, 1,2-Ethanediol, reaction products 108-24-7D, reaction products with Neodol 23-6.5 **108-30-5D**, reaction products 108-31-6D, 2,5-Furandione, reaction products 110-15-6D, Butanedioic acid, esters with Neodol 23-6.5, uses 111-46-6D, reaction products 112-70-9D, 1-Tridecanol, reaction products with cyanoacetic acid 124-04-9D, Hexanedioic acid, reaction products 126-58-9D, reaction products 149-57-5D, reaction products 334-48-5D, Decanoic acid, reaction products with 2-methyl-2-nitropropanol 372-09-8D, reaction products with tridecyl alc. 546-68-9D, reaction products 625-45-6D, esters with Neodol 23-6.5 6842-15-5D, reaction products with dihydrogen phosphite 15460-71-6D, reaction products with polypropylene 26952-21-6D, Isooctanol, reaction products 33113-10-9D, Neoheptanoic acid, reaction products 56090-54-1D, Triglycerol, reaction products 61757-59-3D, Sandopan DTC, reaction products with 2-methyl-2-nitropropanol 130164-80-6D, reaction products 130164-82-8D, reaction products 141262-20-6D, reaction products
RL: USES (Uses)
(lubricant, for **fluorocarbon refrigerant**)

IT 811-97-2 25322-69-4
RL: USES (Uses)
(**refrigerant**, lubricant for)

IT **108-30-5D**, reaction products
RL: USES (Uses)
(lubricant, for **fluorocarbon refrigerant**)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)

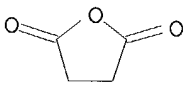


L23 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:217909 HCAPLUS
DN 116:217909
ED Entered STN: 31 May 1992
TI Method for preparing engine seal compatible dispersant for lubricating oils comprising reacting hydrocarbyl substituted discarboxylic compound with aminoguanidine or its basic salt
IN Fenoglio, David J.; Vettel, Paula R.; Eggerding, David W.
PA Amoco Corp., USA
SO U.S., 14 pp. Cont.-in-part of U.S. 4,908,145.
CODEN: USXXAM
DT Patent

LA English
IC ICM C10M133-44
ICS C10M105-70
NCL 252051500A
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5080815	A	19920114	US 1988-292414	19881230
	US 4908145	A	19900313	US 1987-103169	19870930
	CA 1333717	A1	19941227	CA 1988-578537	19880927
	ES 2031242	T3	19921201	ES 1988-309007	19880929
PRAI	US 1987-103169		19870930		

AB A dispersant composition having improved compatibility with **fluorohydrocarbon**-containing elastomer engine seals comprises the reaction product of a C20-250-hydrocarbyl-substituted succinic anhydride with an aminoguanidine or its basic salt at 155-200°. A polybutenyl bis-3-amino-1,2,4-triazole dispersant was prepared by reacting polybutenylsuccinic anhydride and aminoguanidine bicarbonate.
ST lubricating oil engine dispersant; polybutenylsuccinic anhydride aminoguanidine carbonate dispersant
IT Lubricating oil additives
(dispersants, polybutenylsuccinic anhydride-aminoguanidine carbonate adducts, elastomer engine seal-compatible)
IT **108-30-5D**, Succinic anhydride, polybutenyl derivs., reaction products with aminoguanidine salts 996-19-0D, reaction products with polybutenylsuccinic anhydride 2582-30-1D, reaction products with polybutenylsuccinic anhydride 10308-82-4D, Aminoguanidine nitrate, reaction products with polybutenylsuccinic anhydride
RL: USES (Uses)
(dispersants, for lubricating oils, with elastomer engine seal **compatibility**)
IT **108-30-5D**, Succinic anhydride, polybutenyl derivs., reaction products with aminoguanidine salts
RL: USES (Uses)
(dispersants, for lubricating oils, with elastomer engine seal **compatibility**)
RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:104766 HCAPLUS
DN 114:104766
ED Entered STN: 23 Mar 1991
TI **Refrigerant** liquids containing carboxyl esters and **fluorohydrocarbons**
IN Jolley, Scott Ted
PA Lubrizol Corp., USA
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DT Patent

LA English
IC ICM C09K005-04
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9012849	A1	19901101	WO 1990-US2069	19900417
	W: AU, BR, FI, JP, NO				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE				
	IN 176832	A	19960921	IN 1989-DE1081	19891120
	AU 9054480	A1	19901116	AU 1990-54480	19900417
	AU 638710	B2	19930708		
	EP 422185	A1	19910417	EP 1990-906641	19900417
	EP 422185	B1	19950614		
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE				
	BR 9006748	A	19910806	BR 1990-6748	19900417
	JP 03505602	T2	19911205	JP 1990-506490	19900417
	ES 2034938	T3	19951016	ES 1990-906641	19900417
	JP 10251678	A2	19980922	JP 1998-68784	19900417
	CA 2015204	AA	19901025	CA 1990-2015204	19900423
	CA 2015204	C	19980210		
	ZA 9003096	A	19910227	ZA 1990-3096	19900424
	NO 9005529	A	19910214	NO 1990-5529	19901220
	JP 09111229	A2	19970428	JP 1996-235668	19960905
	JP 2895001	B2	19990524		
PRAI	US 1989-343087	A	19890425		
	JP 1990-506490	A3	19900417		
	JP 1996-235668	A3	19900417		
	WO 1990-US2069	A	19900417		

OS MARPAT 114:104766

AB The title compns. comprise a major amount of a C1-2 **fluorohydrocarbon** and a minor amount of a carboxylate ester R(O2CR1)n [R = hydrocarbyl group; R1 = H, C8-22 (un)branched hydrocarbyl, carboxylic acid-containing hydrocarbyl residue, carboxylate ester-containing hydrocarbyl residue; n = ≥2], and these compns. do not have ozone-depleting effects (no data). Thus, a title **composition** comprised 90 parts 1,1,1,2-tetrafluoroethane and 10 parts ester (prepared by the esterification of 6.05 mol 2-ethylhexanoic acid and 2 mol glycerol).

ST **fluoroalkane** ester **refrigerant compn** manuf; ozone nondepletion **refrigerant** liq **compn**

IT Fatty acids, esters
RL: USES (Uses)
(C12-14, Me esters, reaction products, with polyhydroxy compds., **refrigerant** liquid compns. containing, and **fluorocarbons**)

IT **Refrigeration**
(agents, **fluorohydrocarbon**-hydroxy group-containing esters, manufacture of, ozone non-depleting)

IT Hydrocarbons, uses and miscellaneous
RL: USES (Uses)
(**fluoro, refrigeration** liquid compns. containing, and hydroxy group-containing esters)

IT Esters, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(hydroxy-containing, preparation and utilization of, with **fluorohydrocarbons** in **refrigerant** liquid compns.)

IT **108-30-5D**, Succinic anhydride, reaction products with ethylene glycol and primary aliphatic alcs. 108-31-6D, Maleic anhydride, reaction products with ethylene glycol and primary aliphatic alcs.

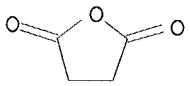
RL: USES (Uses)
(**refrigerant** liquid compns. containing **fluorocarbons** and)

IT 50-70-4D, D-Glucitol, hydroxyl group-containing carboxylate esters 56-81-5D, 1,2,3-Propanetriol, hydroxyl group-containing carboxylate esters 67-56-1D, Methanol, C8-10 carboxylate esters, sorbitol transesterification products 77-99-6D, hydroxyl group-containing carboxylate esters 78-24-0D, Tripentaerythritol, hydroxy group-containing carboxylate esters 106-70-7D, Methylhexanoate, hydroxy group-containing carboxylate esters 108-24-7D, hydroxyl group-containing carboxylate esters 111-46-6D, hydroxy group-containing carboxylate esters 111-82-0D, Methyl dodecanoate, hydroxy group-containing carboxylate esters 112-27-6D, Triethyleneglycol, hydroxy group-containing carboxylate esters 115-77-5D, hydroxy group-containing carboxylate esters 124-10-7D, Methyltetradecanoate, hydroxy group-containing carboxylate esters 126-58-9D, Dipentaerythritol, hydroxy group-containing carboxylate esters 143-07-7D, Dodecanoic acid, hydroxy group-containing carboxylate esters 149-57-5D, 2-Ethylhexanoic acid, hydroxyl group-containing carboxylate esters 544-63-8D, Tetradecanoic acid, hydroxy group-containing carboxylate esters 33113-10-9D, Neoheptanoic acid, hydroxy group-containing carboxylate esters 36675-34-0D, Hexaglycerol, hydroxyl group-containing carboxylate esters 56090-54-1D, Triglycerol, hydroxyl group-containing carboxylate esters
RL: USES (Uses)
(**refrigerant** liquid compns. containing, and **fluorocarbons**)

IT 811-97-2, 1,1,1,2-Tetrafluoroethane
RL: USES (Uses)
(**refrigerant** liquid compns. containing, ozone non-depleting)

IT **108-30-5D**, Succinic anhydride, reaction products with ethylene glycol and primary aliphatic alcs.
RL: USES (Uses)
(**refrigerant** liquid compns. containing **fluorocarbons** and)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 19 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:46356 HCAPLUS
DN 114:46356
ED Entered STN: 09 Feb 1991
TI Carboxylic esters, liquid **compositions** containing them and methods of lubricating metal parts
IN Salomon, Mary Frisinger; Jolley, Scott Ted; Lange, Richard Michael
PA Lubrizol Corp., USA
SO PCT Int. Appl., 63 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07F009-40
ICS C10M105-74; C09K005-04
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	WO 9009387	A1	19900823	WO 1990-US544	19900131
	W: AU, BR, FI, JP, NO				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE				
	US 5302305	A	19940412	US 1989-310146	19890209
	AU 9050865	A1	19900905	AU 1990-50865	19900131
	AU 630927	B2	19921112		
	EP 408733	A1	19910123	EP 1990-903123	19900131
	R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, SE				
	BR 9005183	A	19910806	BR 1990-5183	19900131
	JP 03503907	T2	19910829	JP 1990-503272	19900131
	CA 2009484	AA	19900809	CA 1990-2009484	19900207
	NO 9004287	A	19901002	NO 1990-4287	19901002
PRAI	US 1989-310146		19890209		
	WO 1990-US544		19900131		

OS MARPAT 114:46356

AB P-containing compns. and carboxylic ester compns. are described. The esters are useful as synthetic lubes and as lubricants in liquid compns. containing F-containing hydrocarbons. The liquid compns. are especially useful as **refrigeration** liqs. in **refrigerators** and air conditioners. A such liquid **composition** comprises (A) as a major amount of a F-containing C1-2 hydrocarbon, and (B) a minor amount of a lubricant comprising ≥1 carboxylic esters having the formula R'ZR11 (I), [(R3O)2P(O)(CHR10)2COO]nR, [(R3O2)P(O)C(CHR10COOR1)R10COO]nR, and [(R3O)2P(O)C(COOR1)R10CHR10COO]nR, where R' is a hydrocarbylene group or a hydrocarbylene group substituted with P(O)(OR3)2 group; Z is COOR1, CONR4R5, CO(OR6)yN(R4)COR7, CO(OR6)yOCOR7, CN, CHO, or COR7; R is an alkylene group; R1 is a hydrocarbyl group or a hydrocarbyloxy hydrocarbyl group and R1 may be the same as R3, but R3 is independently a hydrocarbyl group; R4 and R5 are independently H or hydrocarbyl groups; R6 is a hydrocarbylene group; R7 is a hydrocarbyl group; y = 1-20 integer; R10 is independently H or hydrocarbyl group; R11 = H or COOR1; n = 2-6 integer, provided that in the formula I, and ≥1 of Z or R11 is a COOR1 group, and when both Z and R11 are COOR1, R' is a hydrocarbylene group substituted with P(O)(OR3)2 group.

ST **refrigeration** liq lubricant carboxylic ester; phosphorus **compn** carboxylic ester lubricant

IT Lubricants
(phosphorus-containing carboxylic esters, for **refrigeration** liqs.)

IT Alcohols, compounds
RL: USES (Uses)
(C12-15, ethoxylated, reaction products, with maleic anhydride and triethylphosphite, lubricants, for **refrigeration** liqs.)

IT Alcohols, compounds
RL: USES (Uses)
(C12-18, reaction products, with maleic anhydride and tridecylphosphite, lubricants, for **refrigeration** liqs.)

IT Alcohols, compounds
RL: USES (Uses)
(C8-10, reaction products, with acrylic acid and triethylphosphite, lubricants, for **refrigeration** liqs.)

IT 67-63-0D, 2-Propanol, reaction products with maleic anhydride and phosphites 78-83-1D, Isobutanol, reaction products with maleic anhydride and phosphites 79-10-7D, 2-Propenoic acid, reaction products with phosphite and alcs. or amines 102-85-2D, Tributylphosphite, reaction products with maleic monoesters 104-75-6D, reaction products with maleic anhydride, ethanol, and triethylphosphite **108-30-5D**, Succinic

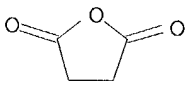
anhydride, propylene tetramer-substituted, Me esters 108-31-6D, Maleic anhydride, reaction products with alcs. and phosphites or amines 110-17-8D, Fumaric acid, di-C12-14 esters, reaction products with di-Bu hydrogen phosphite 111-17-1D, Thiodipropionic acid, reaction products with trimethylpentanol 112-90-3D, reaction products with acrylic acid and triethylphosphite 115-69-5D, 2-Amino-2-methyl-1,3-propanediol, reaction products with acrylic acid and triethylphosphite 122-52-1D, Triethyl phosphite, reaction products with maleic anhydride and alcs. or amines 301-13-3D, reaction products with maleic monoesters 762-04-9D, Diethyl phosphite, reaction products with dioctyl maleate 1331-40-4D, 2,2,4-Trimethylpentanol, reaction products with thiodipropionic acid 2915-53-9D, Dioctyl maleate, reaction products with di-Et phosphite 2929-86-4D, Tridecylphosphite, reaction products with acrylic acid and amines 25339-17-7D, Isodecyl alcohol, reaction products with maleic anhydride and phosphites
RL: USES (Uses)
(lubricants, for **refrigeration** liqs.)

IT 7723-14-0
RL: USES (Uses)
(lubricants, phosphorus-containing carboxylic esters, for **refrigeration** liqs.)

IT 811-97-2, R134a
RL: USES (Uses)
(**refrigerant**, phosphorus-containing carboxylic esters as lubricants for)

IT **108-30-5D**, Succinic anhydride, propylene tetramer-substituted, Me esters
RL: USES (Uses)
(lubricants, for **refrigeration** liqs.)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 20 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1990:481480 HCAPLUS
DN 113:81480
ED Entered STN: 01 Sep 1990
TI Liquid **refrigerant compositions**
IN Grava, Arturs; Jolley, Scott T.
PA Lubrizol Corp., USA
SO PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C09K005-04
ICS C10M105-34; C10M105-36; C10M105-70
ICI C10N040-30
CC 48-5 (Unit Operations and Processes)
FAN.CNT 1

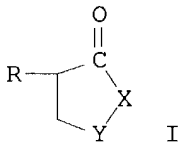
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9005174	A1	19900517	WO 1989-US4562	19891010

W: AU, BR, DK, FI, JP, NO
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE

US	4938887	A	19900703	US 1988-269894	19881110
AU	8944213	A1	19900528	AU 1989-44213	19891010
AU	624438	B2	19920611		
BR	8907156	A	19910226	BR 1989-7156	19891010
EP	416045	A1	19910313	EP 1989-911924	19891010
EP	416045	B1	19940921		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP	03502206	T2	19910523	JP 1989-511068	19891010
CA	2002316	AA	19900510	CA 1989-2002316	19891106
US	5023007	A	19910611	US 1990-498234	19900323
NO	9002945	A	19900702	NO 1990-2945	19900702
DK	9001648	A	19900830	DK 1990-1648	19900709
PRAI US	1988-269894		19881110		
	WO 1989-US4562		19891010		

OS MARPAT 113:81480

GI



I

AB The **refrigerant composition** comprises (1) a major amount of a F-containing hydrocarbon, and (2) a minor amount of a soluble organic lubricant free of acetylenic and aromatic unsatn. and comprising a cyclic compound characterized by structure (I), wherein R is H, a hydrocarbyl group, or -R2COOR1, X is O or NR3, Y is CHR4, C = O, C = NR5, R1 is H or a lower hydrocarbyl group, R2 is an alkylene group, R3 is H or a hydrocarbyl group, R5 is H or an alkylene group joined with R3 when X is NR3 to form a cyclic moiety, R6 is an alkylene group, R7 is H or a hydrocarbyl group, R8 is an alkylene group, and R9 and R10 are each independently H or hydrocarbyl groups, or R9 and R10 are hydrocarbylene groups joined together to form a heterocyclic moiety, provided that when Y is CH2 and X is NR3, R3 is not a hydrocarbyl group.

ST **refrigerant compn**

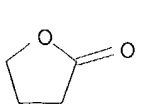
IT **Refrigeration**
(agent for)

IT **96-48-0D**, Tetrahydro-2-furanone, derivs. 616-45-5D, 2-Pyrrolidinone, derivs.
RL: USES (Uses)
(**refrigeration** agent)

IT **96-48-0D**, Tetrahydro-2-furanone, derivs.
RL: USES (Uses)
(**refrigeration** agent)

RN 96-48-0 HCAPLUS

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 21 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:442683 HCAPLUS
DN 111:42683
ED Entered STN: 05 Aug 1989
TI Engine seal compatible dispersant for lubricating oils
IN Fenoglio, David John
PA Amoco Corp., USA
SO Eur. Pat. Appl., 22 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C10M133-58
ICS C10M163-00; C10M167-00; C07D249-14
ICI C10M163-00, C10M133-52, C10M133-58, C10M159-22, C10M159-16; C10M167-00, C10M133-52, C10M133-58, C10M149-02, C10M159-16; C10N030-04, C10N040-00, C10N060-14
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 310365	A1	19890405	EP 1988-309007	19880929
	EP 310365	B1	19920513		
	R: BE, DE, ES, FR, GB, IT, NL				
	US 4908145	A	19900313	US 1987-103169	19870930
	CA 1333717	A1	19941227	CA 1988-578537	19880927
	ES 2031242	T3	19921201	ES 1988-309007	19880929
PRAI	US 1987-103169		19870930		

AB A dispersant composition having improved compatibility with **fluorohydrocarbon**-containing elastomer engine seals comprises the reaction product obtained by reacting a C40-250 hydrocarbyl-substituted succinic anhydride with aminoguanidine or its basic salt at 155-200°, e.g., polybutenyl bis-3-amino-1,2,4-triazole from polybutenylsuccinic anhydride and aminoguanidine bicarbonate. In several embodiments, the above dispersant can be used with a polymeric dispersant-VI improver and/or an alkaline earth phenate detergent.

ST lubricating oil engine seal dispersant; polybutenylsuccinic anhydride aminoguanidine bicarbonate dispersant

IT Lubricating oil additives
(dispersants, polybutenylsuccinic anhydride-aminoguanidien salt reaction products, engine seal-compatible)

IT 108-95-2D, Phenol, alkyl derivs., sulfurized, calcium salts, overbased
RL: USES (Uses)
(detergents, with triazole dispersants, engine seal-compatible, for lubricating oils)

IT 108-95-2D, Phenol, polybutyl, Mannich reaction products with polyalkylenepolyamines and formaldehyde 111-40-0D, Diethylenetriamine, Mannich reaction products with polybutylphenol and formaldehyde 112-24-3D, Mannich reaction products with polybutylphenol and formaldehyde 112-57-2D, Tetraethylenepentamine, Mannich reaction products with polybutylphenol and formaldehyde
RL: USES (Uses)

(dispersants containing, and triazoles, engine seal-compatible, for lubricating oils)

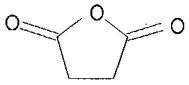
IT **108-30-5D**, Succinic anhydride, reaction products with butene polymers and aminoguamidine bicarbonate 996-19-0D, reaction products with polybutenylsuccinic anhydride 2582-30-1D, Aminoguanidine bicarbonate, reaction products with polybutenylsuccinic anhydride 7440-42-8D, Boron, compds., reaction products with polybutenylsuccinic anhydride and aminoguanidine salts 10308-82-4D, Aminoguanidine nitrate, reaction products with polybutenylsuccinic anhydride
RL: USES (Uses)
(dispersants, engine seal-**compatible**, for lubrication oils)

IT 9010-79-1D, Ethylene-propylene copolymer, oxidized, reaction products with amines and formaldehyde
RL: USES (Uses)
(dispersants-viscosity improvers, with triazole dispersants, engine seal-compatible for lubricating oils)

IT 123-56-8D, Succinimide, derivs.
RL: USES (Uses)
(engine seal-compatible, for lubricating oils)

IT **108-30-5D**, Succinic anhydride, reaction products with butene polymers and aminoguamidine bicarbonate
RL: USES (Uses)
(dispersants, engine seal-**compatible**, for lubrication oils)

RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 22 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:610281 HCAPLUS
DN 93:210281
ED Entered STN: 12 May 1984
TI Antiglaucoma preparation
IN Miestereck, Helmut; Runge, Joachim; Ploss, Erich
PA Thilo, Dr., und Co. G.m.b.H., Fed. Rep. Ger.
SO Ger. Offen., 11 pp.
CODEN: GWXXBX
DT Patent
LA German
IC A61K031-415; A61K031-725
CC 63-6 (Pharmaceuticals)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2854279	A1	19800703	DE 1978-2854279	19781215
PRAI	DE 1978-2854279		19781215		

AB Antiglaucoma prepns. contain pilocarpine [**92-13-7**] or its salts and pectin [9000-69-5] as a stabilizer. A solution was prepared containing 2% (base) pilocarpine-HCl [**54-71-7**], 1% pectin in Sorensen phosphate buffer, pH 7.0. This solution was more stable after storage for 2, 6, and 10 mo at room temperature or in a **refrigerator** than a similar solution without pectin.

ST pilocarpine pectin **compn**; glaucoma pilocarpine pectin

compn

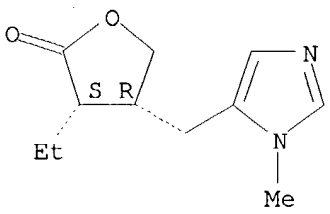
IT **54-71-7 92-13-7 16509-56-1**
RL: BIOL (Biological study)
(antiglaucoma compns. containing pectin stabilizers and)

IT 9000-69-5
RL: BIOL (Biological study)
(pilocarpine stabilizer, for antiglaucoma prepns.)

IT **54-71-7 92-13-7 16509-56-1**
RL: BIOL (Biological study)
(antiglaucoma compns. containing pectin stabilizers and)

RN 54-71-7 HCAPLUS
CN 2(3H)-Furanone, 3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)methyl]-, monohydrochloride, (3S,4R)- (9CI) (CA INDEX NAME)

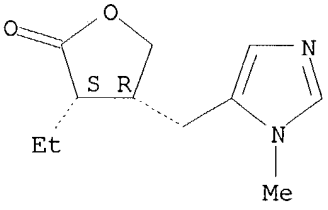
Absolute stereochemistry.



● HCl

RN 92-13-7 HCAPLUS
CN 2(3H)-Furanone, 3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)methyl]-, (3S,4R)- (9CI) (CA INDEX NAME)

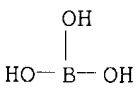
Absolute stereochemistry.



RN 16509-56-1 HCAPLUS
CN Boric acid (H3BO3), compd. with (3S-cis)-3-ethyldihydro-4-[(1-methyl-1H-imidazol-5-yl)methyl]-2(3H)-furanone (9CI) (CA INDEX NAME)

CM 1

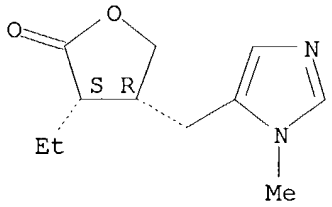
CRN 10043-35-3
CMF B H3 O3



CM 2

CRN 92-13-7
CMF C11 H16 N2 O2

Absolute stereochemistry.



L23 ANSWER 23 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:446648 HCAPLUS
DN 93:46648
ED Entered STN: 12 May 1984
TI Derivatives of 2-iminothiazolidines and 4-thiazolines
IN Rooney, Clarence S.; Rokach, Joshua; Cragoe, Edward J., Jr.
PA Merck and Co., Inc., USA
SO U.S., 11 pp.
CODEN: USXXAM
DT Patent
LA English
IC A61K031-435; C07D417-12
NCL 548195000
CC 28-7 (Heterocyclic Compounds (More Than One Hetero Atom))
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4180661	A	19791225	US 1978-925099	19780717
	US 4125715	A	19781114	US 1977-854668	19771125
PRAI	US 1977-854668		19771125		

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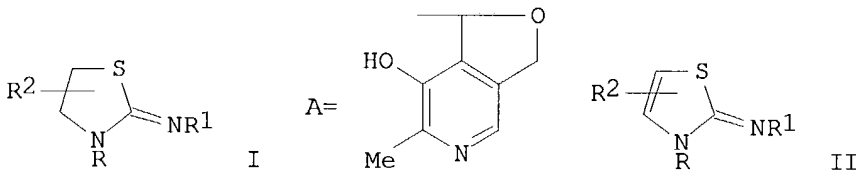


AB 3-Substituted 2-iminothiazolidines were N-acylated and N-alkylated to the resp. I [R = alkyl, alkenyl, alkynyl; R1 = COR3 [R3 = aminoalkyl, (alkanoylamino)alkyl, phenyl(alkanoylamino)alkyl, carboxyalkyl, alkanoylalkyl N-(4-thiazolin-2-ylidene)- or (thiazolidin-2-ylidene)carbamoyl, pyridyl], CHR4NR5R6 (R4 = H, alkyl, Ph, alkoxyphenyl, pyridyl; R5 = H, alkyl; R6 = alkyl, alkanoyl, benzoyl; NR5R6 = succinimido,4-thiazolin-2-ylideneamino, thiazolidin-2-ylideneamino), A; R2

= H, alkyl, CF3], and II (R, R1, and R2 same as above) were prepared by the same methods; I and II are useful as indoleamine-N-Me transferase inhibitors (no data) and in the treatment of schizophrenia (no data). A mixture of 2-amino-4-(trifluoromethyl)thiazole and FSO3Me in CH2Cl2 was kept in a **refrigerator** to yield II (R = Me, R1 = H, R2 = 4-CF3) **fluorosulfonate.**

ST iminothiazolidine prepn schizophrenia; thiazolidine imino prepn schizophrenia; thiazoline imino prepn schizophrenia; transferase indoleaminemethyl iminothiazolidine prepn

IT Schizophrenia
(iminothiazolidines and -thiazolines for treatment of)

IT 50-00-0, reactions 75-07-0, reactions 100-52-7, reactions 120-14-9 872-85-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation reaction of, with iminothiazolidine derivative)

IT 100-02-7, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of succinic acid by)

IT 110-15-6, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(esterification of, by nitrophenol)

IT 9073-61-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(inhibitors for, iminothiazolidines and -thiazolines as)

IT 63880-69-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and cyclocondensation reaction of)

IT 33109-58-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with iminothiazolidine derivative)

IT 63880-72-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and substitution reaction of, with ammonia)

IT 63880-70-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and N-methylation of)

IT 6149-13-9P 6558-48-1P 63880-66-0P 63880-67-1P 63880-73-9P
63880-74-0P 63880-76-2P 65400-63-7P 65400-65-9P 65400-67-1P
65400-68-2P 65400-69-3P 65400-71-7P 65400-72-8P 65400-73-9P
65400-74-0P 65400-75-1P 65400-76-2P 65400-77-3P 65400-78-4P
65400-79-5P 65400-80-8P 65400-81-9P 65400-82-0P 65400-83-1P
73316-07-1P 73316-08-2P 73316-09-3P 73316-10-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

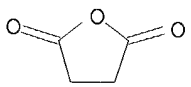
IT 66-72-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with iminothiazolidine derivative, cyclization in)

IT 1779-81-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(ring N-alkylation of)

IT 421-20-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(ring N-alkylation of aminothiazole derivative by)

IT 75-03-6 106-94-5 106-95-6, reactions 106-96-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(ring N-alkylation of aminothiazoline by)
IT 96-50-4 349-49-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(ring N-methylation of)
IT 7664-41-7, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(substitution reaction of, with (methylthio)thiazoline derivative)
IT 59-67-6, reactions **108-30-5**, reactions 541-50-4, reactions
674-82-8 2018-61-3 3304-61-8 4530-20-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-acylation of iminothiazolidine derivative by)
IT 33918-09-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-acylation of, by aminoacetic acid derivative)
IT 3732-56-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-alkylation and N-acylation reactions of)
IT 51-80-9 38792-42-6 50680-64-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-alkylation of iminothiazolidine derivative by)
IT 420-37-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-alkylation of thiazoline derivative by)
IT 75-15-0, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-carboxylation of ethanolamine derivative by Me iodide and)
IT 74-88-4, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-carboxylation of ethanolamine derivative by carbon disulfide and)
IT 63880-68-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-carboxylation of, by carbon disulfide and Me iodide)
IT **108-30-5**, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-acylation of iminothiazolidine derivative by)
RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 24 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:613868 HCAPLUS
DN 89:213868
ED Entered STN: 12 May 1984
TI Instant pudding **composition**
IN Kimura, Masaji
PA Japan
SO Jpn. Kokai Tokkyo Koho, 2 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC A23L001-187

CC 17-3 (Foods)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 53096360	A2	19780823	JP 1977-8693	19770131
PRAI	JP 1977-8693		19770131		

AB A milk pudding mixture is formulated from water-soluble casein salts, gluconolactone [**90-80-2**], and, optionally, dry milk; gluconolactone gradually decreases pH to the isoelec. point of milk casein and, thus, coagulates the latter to give a thick pudding with excellent texture. Thus, a mixture of Na caseinate 100, dry whole milk 10, gluconolactone 15, instant coffee 5, sucrose 3.5, carrageenan 0.5, locust bean gum 5, and coffee flavor 3 parts was dissolved in milk to 15%, poured into a mold, and **refrigerated** for 3 h to obtain a coffee-flavored pudding.

ST caseinate gluconolactone pudding

IT Puddings
(gluconolactone and sodium caseinate of)

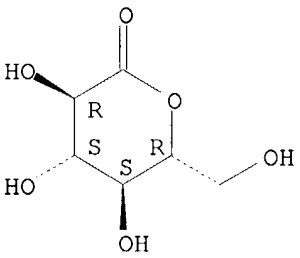
IT Caseins, compounds
RL: BIOL (Biological study)
(sodium complexes, pudding containing gluconolactone and)

IT **90-80-2**
RL: BIOL (Biological study)
(pudding containing sodium caseinate and)

IT **90-80-2**
RL: BIOL (Biological study)
(pudding containing sodium caseinate and)

RN 90-80-2 HCAPLUS
CN D-Gluconic acid, δ-lactone (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L23 ANSWER 25 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1968:60615 HCAPLUS
DN 68:60615
ED Entered STN: 12 May 1984
TI Thermosetting and air-drying coating **compositions**
IN Vasta, Joseph A.
PA du Pont de Nemours, E. I., and Co.
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
NCL 260834000
CC 42 (Coatings, Inks, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3366706	A	19680130	US 1967-642181	19670529
PRAI	US 1967-642181		19670529		

AB Polymers having pendant CO2H groups are prepared and esterified with a glycidyl derivative which is treated with the anhydride of a dicarboxylic acid, and the CO2H group resulting from the anhydride is esterified with a glycidyl derivative The pendant ester groups of the polymer provide good adhesion to a variety of substrates when the polymers are used in coating compns. The polymers are compatible with alkyd resins, urea-HCHO resins, and melamine-HCHO resin. The thermosetting coating compns. are especially useful for finishing applicances, such as **refrigerators** and ranges, and the finishes have excellent alkali, detergent, grease, abrasion, and stain resistance. Thus, chlorendic anhydride 87.3, styrene 183.5, acrylic acid 41.6, Cardura E 198.8, and xylene 326.8 parts were mixed and heated to 248°F. Cardura E is a mixed ester, described in U.S. patent 3,274,583, of 2,3-epoxypropanol and a tertiary carboxylic acid. The mixture prepared above was treated with 2.0 parts di-tert-Bu peroxide in 5.0 parts xylene, allowed to stand without addnl. heating for 2 hrs., refluxed for 2 hrs., treated with a 2nd identical peroxide solution, refluxed for 2 hrs., and cooled to room temperature The resulting solution had solids content 60%, Gardner-Holdt viscosity Y-Z1, and acid number 3. To prepare a thermosetting paint, this polymer solution (85 parts) was mixed with 67 parts urea-HCHO resin (60% solids solution in BuOH), 15 parts xylene, and 150 parts of a pigment dispersion prepared by mixing rutile TiO2 pigment 600, xylene 300, and the polymer solution prepared above (60% solids) 100 parts and grinding the mixture to 0.3 mil fineness. The paint was reduced to 20-5% solids with xylene, sprayed on primed and unprimed steel plates, and baked 30 min. at 300°F. Each of the finishes had excellent resistance to solvents such as MeCOEt and was scratch resistant, i.e., a 2H pencil did not damage or mar the finish. Polymers are also prepared from phthalic anhydride, Me methacrylate (I), methacrylic acid (II), and Cardura E, from succinic anhydride, styrene, I, Et acrylate, II, and Cardura E, from tetrabromophthalic anhydride (or maleic anhydride), styrene, acrylic acid, and Cardura E, from I, II, a soya oil fatty acid glycidyl ester, and phthalic anhydride, and from acrylic acid, tetrahydrophthalic acid, styrene, and Cardura E. These polymers were used alone, with urea-HCHO resins, or with melamine-HCHO resins to prepare coating compns.

ST PHENOLIC EPOXY COATINGS; EPOXY PHENOLIC COATINGS; POLYETHER COATINGS; COATINGS POLYETHER

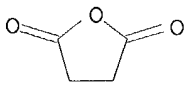
IT Coating materials
(from dicarboxylic anhydride polymers with Cardura E and vinyl compds.)

IT Maleic anhydride
RL: USES (Uses)
(polymers with Cardura E and vinyl compds., for coatings)

IT Acrylic acid
Acrylic acid ethyl ester
Methacrylic acid, uses and miscellaneous
Methacrylic acid methyl ester, uses and miscellaneous
Styrene, uses and miscellaneous
RL: USES (Uses)
(polymers with anhydrides of dicarboxylic acids and Cardura E, for coatings)

IT Cardura E
RL: USES (Uses)
(polymers with anhydrides of dicarboxylic acids and vinyl compds., for coatings)

IT **108-30-5**
RL: USES (Uses)
(for coatings)
IT 88-98-2 115-27-5 632-79-1
RL: USES (Uses)
(polymer with Cardura E and vinyl compds., for coatings)
IT 85-44-9
RL: USES (Uses)
(polymers with Cardura E and vinyl compds., for coatings)
IT **108-30-5**
RL: USES (Uses)
(for coatings)
RN 108-30-5 HCAPLUS
CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 26 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1966:448429 HCAPLUS
DN 65:48429
OREF 65:9103c-g
ED Entered STN: 22 Apr 2001
TI Soluble reactive compounds prepared from soluble amine polymers
IN Clark, R. C.; Sutton, D. A.
PA Gelatine and Glue Research Assocn.
SO 18 pp.
DT Patent
LA Unavailable
CC 48 (Plastics Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	BE 653465		19650118	BE	
	FR 1422903			FR	
PRAI	GB		19630924		

AB Soluble amine polymers containing >2 amino groups/mol. are modified with bifunctional reactants to form soluble reactive compds. Stability of the soluble reactive compds. is achieved by using monofunctional reactants, such as sulfonyl chlorides, PhCNS, 2,4-dinitro-1-**fluorobenzene**, acid anhydrides, and other reagents which react with amino groups. The bifunctional reaction usually precedes the monofunctional and both are carried out at a low concentration and are controlled by temperature and pH. The final products are made by reaction of the soluble reactive compds. with soluble amine polymer, with insol. amine polymers, such as animal hair or hides, or other materials. Printing ink, adhesives, sutures, photographic materials, and microcapsules are some of the products possible with this process. Thus, 1000 g. of acid gelatin of pork skin is dissolved in 18 l. H2O at 40°. The gelatin contains an equivalent of α- and ε-amino and imidazole groups, having a viscosity of 8.2 centistokes at 6.66% concentration by weight in H2O and a Bloom coefficient of 286 at the

same concentration To the mixture is added 125 g. Na salt of 2,4-dichloro-6-(p-sulfoanilino)-s-triazine in 500 ml. H2O as a fine paste. The pH of the new mixture is adjusted to 9.0 in 15 min. with aqueous NaOH then held at that pH for 10 min. During this time the mixture is stirred constantly and held at 40°. The pH is raised to 9.5 as before and 83 g. PhSO2Cl is added as a fine jet. The pH is held at 9.5 for 15 min., then lowered to 6.9 with dilute HCl. The gel which forms by **refrigerating** is cut into small pieces and washed with H2O until free of chloride and then the volume is reduced to 10 l. by evaporation The gel is dried in air at ambient temperature and ground. The active soluble compound has a viscosity of 7.8 and a Bloom coefficient of 133 at 6.66% concentration by weight in H2O. An aqueous solution of 10% by weight of equal amts. of the initial gelatin and the active soluble compound gels insol. in 30 min. at pH 9.0 and 60°. A dilute solution of the active soluble compound clouds at pH 5.1 and 40°; at pH 4.4 a precipitate is noted which becomes a paste rich in protein which can be measured quant. and which dissolves in H2O when the pH is >5.1. A mixture of 20 g. active soluble compound, 500 ml. H2O at 40°, and 100 g. peanut oil is prepared in a blender. The particle size is 0.5-3 μ. The mixture is diluted to a total volume of 1.7 l., heated to 65°, agitated continuously, and N AcOH added dropwise. At pH 4.75 a conglomerate forms with particle size 10-30 μ and at 15° a gel forms. To this gel is added 1 ml. of a neutral solution of ethylenediamine and the pH is raised to 10.0 with aqueous NaOH, with continuous agitation, then held at that pH for 15 min. The pH is then lowered to 7.0 with dil HCl. The result is microcapsules which are hardened for 2 hrs. at 60°.

IT Capsules
(gelatin modified by bifunctional triazine compds. and monofunctional compds. for micro-)

IT Amines
(reaction products of, with triazine derivs. and then monofunctional compds.)

IT Casein, Caseinogen
Collagen
Gelatin
Proteins
Zein
(reaction products with bifunctional triazine compds. and then with monofunctional compds., soluble)

IT Peptides
(reaction products with bifunctional triazine compds., reaction products with monofunctional compds., soluble)

IT Anhydrides
Sulfonyl chlorides
(reaction products with peptides modified by bifunctional triazine compds.)

IT Albumins
(reaction products, with bifunctional triazine compds. and then with monofunctional compds., soluble)

IT Acetic anhydride, polymer with acrylic acid and 2-aminothiazole
(reaction products with peptides modified by bifunctional triazine compds.)

IT 85-46-1, 1-Naphthalenesulfonyl chloride 93-11-8, 2-Naphthalenesulfonyl chloride 98-09-9, Benzenesulfonyl chloride 98-59-9, p-Toluenesulfonyl chloride 98-88-4, Benzoyl chloride 103-71-9, Isocyanic acid, phenyl

ester **108-30-5**, Succinic anhydride 112-16-3, Lauroyl chloride 124-63-0, Methanesulfonyl chloride 3764-01-0, Pyrimidine, 2,4,6-trichloro- 4156-21-2, Sulfanilic acid, N-(4,6-dichloro-s-triazin-2-yl)-, sodium salt 4398-46-3, 1-Naphthalenesulfonic acid, 5-[(4,6-dichloro-s-triazin-2-yl)amino]-, sodium salt 13436-79-8, Ethanol, 2,2'-[(4,6-dichloro-s-triazin-2-yl)imino]di-
(amine polymers modified by)

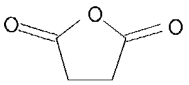
IT 70-34-8, Benzene, 1-**fluoro**-2,4-dinitro-
(reaction product with peptides modified by bifunctional triazine compds.)

IT 85-44-9, Phthalic anhydride
(reaction products with peptides modified by bifunctional triazine compds.)

IT **108-30-5**, Succinic anhydride
(amine polymers modified by)

RN 108-30-5 HCAPLUS

CN 2,5-Furandione, dihydro- (9CI) (CA INDEX NAME)



L23 ANSWER 27 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1965:15269 HCAPLUS

DN 62:15269

OREF 62:2755g-h,2756a-h,2757a-h

ED Entered STN: 22 Apr 2001

TI Constituents of Boenninghausenia albiflora var japonica. I. Structure of matzukaze lactone

AU Miyazaki, Toshio; Mihashi, Susumu

CS Tokyo Coll. Pharm.

SO Chemical & Pharmaceutical Bulletin (1964), 12(10), 1232-5
CODEN: CPBTAL; ISSN: 0009-2363

DT Journal

LA English

CC 37 (Heterocyclic Compounds (One Hetero Atom))

GI For diagram(s), see printed CA Issue.

AB The presence has been reported of 0.0006% dictamnine and 0.0015% bergapten in the air-dried leaves and stems of B. albiflora. From the MeOH extract of the leaves of B. albiflora was isolated a new constituent, which was termed matsukaze lactone (I) on the basis of evidence that it contained 2 lactone groups. The structure of I was elucidated. Air-dried pulverized leaves (2.45 kg.) of B. albiflora were extracted with 15 l. MeOH 1 month at room temperature, the extraction repeated 3 times, the combined exts. concentrated to small volume (.apprx.1 l.) and kept several weeks, the precipitate which separated filtered off, washed repeatedly with Et2O, combined with precipitate obtained by concentrating the mother liquor and washings, and extracted with a large volume boiling Me2CO, the extract filtered, concentrated to small volume, and allowed to stand, the precipitate filtered off and dissolved in CHCl3, and the solution filtered and passed through a column of Al2O3 to give from the CHCl3 eluates 7.40 g. I,

C20H14O6, m. 267-8° (Me2CO), [α20D 0° (c 2.2, CHCl3), λ (EtOH) 220, 257, and 326 mμ (log ε 4.37, 4.02, and 4.44), λ (0.1N NaOH-EtOH) 221 and 337 mμ (log ε 4.48 and 4.13), ν (KBr) 1724 (coumarin carbonyl), 1605, 1566, 1500, 831, 820 (aromatic ring), 1374, 1250, 1100 cm.-1 (me- thoxyl), containing 2 MeO groups; no I was obtained from the stems of the plant by the above extraction Hydrolytic titration of I (solution in 0.5N EtOH-KOH by warming, dilution with H2O, and titration with 0.1N HCl with phenolphthalein as indicator) indicated the presence of 2 lactone groups. To 2.00 g. I in 300 ml. Me2CO and 85 ml. H2O was added a 15-ml. portion MeOH-KOH solution (20 g. KOH dissolved in MeOH to make 300 ml. solution), the solution refluxed 20 min., 43.3 g. Me2SO4 and the remaining MeOH-KOH added alternately during 3 hrs. while refluxing and stirring, followed by concentrated aqueous solution of 10 g. KOH, and the solution refluxed further, filtered, concentrated to small volume, acidified with HCl under ice cooling, and **refrigerated** overnight to give 2.40 g. tetramethoxy diacid (II), C22H22O8, m. 217-18° (decomposition) (MeOH), neutralization equivalent 212, λ (EtOH) 229 and 263 mμ (log ε 4.44 and 4.47), ν (KBr) 1690-1680 cm.-1 (α,β-unsatd. carbonyl); these results pointed to a cinnamic acid derivative II methylated with Et2O-CH2N2 gave after chromatography on Al2O3 di-Me ester, C24H26O8, m. 131-2° (70% EtOH), ν (KBr) 1719 cm.-1 (ester carbonyl). To 2.40 g. II in 24 ml. 10% aqueous Na2CO3 was added dropwise during 4 hrs. 5.4 g. KMnO4 in 192 ml. H2O at room temperature with stirring, the mixture stirred 1 hr., the precipitate (A) filtered off and washed with H2O, and the combined filtrate and washings acidified with HCl to give 0.78 g. dibasic aromatic acid (III), C18H18O8, m. 223-4° (decomposition) (MeOH), neutralization equivalent 180.2, λ (EtOH) 226 and 285 mμ (log ε 4.47 and 3.85), ν (KBr) 1662 cm.-1 (carboxyl conjugated with aromatic ring); precipitate A extracted repeatedly with hot Me2CO, the combined exts. evaporated, the oily residue chromatographed on Al2O3 with CHCl3, and the resulting oil treated with a small amount MeOH gave 160 mg. aromatic dialdehyde (IV), C18H18O6, m. 136-6.5° (EtOH), λ (EtOH) 240 and 276 mμ (log ε 4.45 and 4.43), ν (KBr) 1670 cm.-1 (conjugated carbonyl), reacting easily with m-O2NC6H4NHNH2 to give a crude product, m. .apprx.195°, which could not be purified. To 50 mg. IV suspended in 1.5 ml. H2O was added dropwise during 1.5 hrs. 32 mg. KMnO4 in 0.65 ml. H2O at 70° with stirring, followed by 1 ml. 10% aqueous NaOH, the precipitate filtered off and washed 3 times with hot H2O, and the combined filtrate and washings acidified and **refrigerated** to give 14.4 mg. III, m. 222° (decomposition) (MeOH), identical (mixed m.p. and ir spectrum) with III obtained above. Methylation of 100 mg. III with Et2O-CH2N2 gave 98 mg. di-Me ester (IVa), C20H22O8, m. 161-3.5° (50% EtOH), ν (KBr) 1702 cm.-1 (ester carbonyl). III (100 mg.), 3 ml. quinoline, and 30 mg. Cu powder refluxed 4 hrs., the mixture cooled, diluted with Et2O, and filtered, the filtrate added dropwise to 4 ml. concentrated HCl and 6 ml. H2O with stirring and cooling, the layers separated, the aqueous layer extracted with Et2O, the combined Et2O solns. washed 3 times with 5% H2SO4, dried, and evaporated, and the oily residue chromatographed on Al2O3 with CHCl3 gave 32 mg. tetramethoxybiphenyl (V), m. 107.5-8.0° (EtOH), λ (EtOH) 221.5, 248, and 280 mμ (log ε 4.31, 3.91, and 3.79), ν (KBr) 1617, 1594, 1517, 822, 782, 728 (aromatic ring), 1248,

1174, 1110, 1030 cm.-1 (methoxyl), identified (mixed m.p. and ir and uv spectra) as 2,2',4,6'-tetramethoxybiphenyl which was synthesized from 2,1,3- and 4,1,3-I(MeO)2C6H3 [Wachtmeister, (CA 49,14729f]. From these results, structures VI, VIa, and VIb were proposed for I.

IT Boenninghausenia albiflora
(constituents of)

IT Nuclear magnetic resonance
(of benzofuran **fluoro** derivs.)

IT Spectra, visible and ultraviolet
(of **fluoro** benzofuran derivs.)

IT Matsukaze lactone
Matsukaze lactone
(structure of)

IT 3153-73-9, 6,8'-Bicoumarin, 7,7'-dimethoxy-
(as structure of matsukaze lactone)

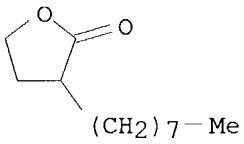
IT 100-00-5, Benzene, 1-chloro-4-nitro-
(polarography of, in Li nitrate ammoniate)

IT 489-33-8, Flavone, 3,4',5,7-tetrahydroxy-3',8-dimethoxy- 549-10-0, Flavone, 3,4',5,7-tetrahydroxy-3',6,8-trimethoxy- 2192-55-4, Ethanol, 2-(pentafluorophenoxy)- **2983-20-2**, Decanoic acid, 2-(2-hydroxyethyl)-, γ-lactone 3153-72-8, Biphenyl, 2,2',4,4'-tetramethoxy- 3153-74-0, Acetophenone, 3'-iodo-2',4'-dimethoxy- 3153-75-1, Acetophenone, 5'-iodo-2',4'-dimethoxy- 3153-76-2, Benzoic acid, 3-iodo-2,4-dimethoxy- 3153-77-3, Benzoic acid, 5-iodo-2,4-dimethoxy- 3153-78-4, Benzoic acid, 3-iodo-2,4-dimethoxy-, methyl ester 3153-79-5, Benzoic acid, 5-iodo-2,4-dimethoxy-, methyl ester 3153-83-1, Flavone, 3,4',5,7-tetrahydroxy-3',6-dimethoxy- 3327-58-0, 3,3'-Biphenyldicarboxylic acid, 2,4',6,6'-tetramethoxy-, dimethyl ester 3327-59-1, 3,3'-Biphenyldicarboxylic acid, 4,4',6,6'-tetramethoxy-, dimethyl ester 70388-52-2, 3,3'-Biphenyldicarboxylic acid, 2,2',6,6'-tetramethoxy-, dimethyl ester
(preparation of)

IT **2983-20-2**, Decanoic acid, 2-(2-hydroxyethyl)-, γ-lactone
(preparation of)

RN 2983-20-2 HCAPLUS

CN 2(3H)-Furanone, dihydro-3-octyl- (8CI, 9CI) (CA INDEX NAME)



L23 ANSWER 28 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1963:66251 HCAPLUS

DN 58:66251

OREF 58:11265g-h,11266a-h,11267a-f

ED Entered STN: 22 Apr 2001

TI Reaction of diazomethane with double bonds. I. Direct methylation of trisubstituted ethylenes

AU Alguero, M.; Bosch, J.; Castaner, J.; Castella, J.; Castells, J.; Mestres, R.; Pascual, J.; Serratosa, F.

CS Univ. Barcelona, Spain

SO Tetrahedron (1962), 18, 1381-94
CODEN: TETRAB; ISSN: 0040-4020

DT Journal
LA Unavailable
CC 35 (Noncondensed Aromatic Compounds)
GI For diagram(s), see printed CA Issue.
AB cf. CA 57, 12455d. Treatment of -γbenzylidene-α-carboxybutenolide (I, R = CO2H, (R' = H) (4.0 g.) in 15 ml. Et2O at 20° with 2.2-2.4 moles CH2N2 in Et2O and the product recrystd. from Et2O (or EtOAc) gave 3.8 g. γ-benzylidene-α-carbomethoxy-methylbutenolide (II, R = CO2Me, R' = H) (III), m. 156-8°, μ, 1786, 1726 cm.-1 (CCl4), λ 202, 227 mμ (ε 14,500, 7180), also produced (0.3 g.) by treatment of I (R = CO2Me, R' = H) (0.3 g.) in Et2O with 1.2-1.4 moles CH2N2 in Et2O. Similarly were prepared II (R, R' and m.p. given): CN, H, 187-90°; CO2Me, Me, m. 154-7°; CO2Me, Cl, 175.0-7.5°; CO2Me, NO2, 166-72° (decomposition). I (R = R' = H) (0.2 g.) treated with excess CH2N2 in Et2O gave unchanged starting material. III (7.23 g.) heated 10 hrs. (N atmospheric) in 200 ml. dioxane and 80 ml. concentrated HCl and the washed (alc., H2O) precipitate recrystd. from dioxane gave 5.22 g. II (R = CO2H, R' = H) (IV), m. 190-2° (decomposition), ν 1757, 1724 cm.-1 (CHCl3), λ 202, 231, 344 mμ (ε 11,300, 7800, 26,400). IV (196 mg.) and 0.2 ml. concentrated HCl refluxed 13 hrs. in 12 ml. MeOH and treated with EtOAc, the filtered solution washed with 2N aqueous K2CO3 and H2O, percolated through an Al2O3 column and the eluate evaporated gave III, also obtained by methylation of IV with ethereal CH2N2. The acids II (R = CO2H, R' = Me, Cl), m. 202-10° (decomposition), λ 204, 233, 351 mμ (ε 16,700, 10,130, 37,900), and m. 208-18° (decomposition), λ 202, 234, 342-3 mμ (ε 12,330, 12,500, 32,700), were similarly prepared IV (2.0 g.) heated in vacuo at 250° and the product distilled at 210°/18 mm. gave 0.8 g. solid, recrystd. from Et2O to give II (R = R' = H) (V), m. 101-3°, ν 1786, 1387 cm.-1 (CCl4), λ 226, 240, 324 mμ (ε 9150, 7960, 20,490). V (1.0 g.) in 20 ml. 40% HI and 20 ml. AcOH heated 6 hrs. at 160° in a sealed tube and the cooled mixture diluted with H2O, treated with a few drops of aqueous NaHSO3 and extracted repeatedly with Et2O, the Et2O shaken with aqueous Na2CO3 and the alkaline solution acidified with 2N HCl, the acid solution extracted with Et2O and the residue on evaporation recrystd. from petr. ether gave 0.96 g. PhCH2COCHMeCH2CO2H (VI), m. 62-3°; semicarbazone m. 171-3° (de-**composition**). VI Me ester (1.3 g.) and 0.28 g. NaH refluxed 6 hrs. in 20 ml. Et2O and the mixture diluted with 40 ml. Et2O, acidified, and the H2O-washed solution evaporated gave 0.6 g. 4-methyl-2-phenyl-cyclopentane-1,3-dione, m. 181-3°. PhCH2COCHMeCO2Et (10.0 g.) in 35 ml. C6H6 treated with NaOEt (from 1.15 g. Na in 15 ml. alc.)and the C6H6 distilled, the mixture refluxed 9 hrs. with 8.25 g. BrCH2CO-2Et in 10 ml. C6H6 and acidified with 2N H2SO4, the C6H6 layer washed with 0.5M aqueous NaHCO3 and H2O and distilled in a high vacuum gave 6.2 g. oil, b0.1 131-2° n22D 1.4960. This oily PhCH2COCMe(CO2Et)CH2CO2Et (8.18 g.)shaken 24 hrs. with 8.18 ml. 10% KOH in dioxane, the mixture washed with Et2O and acidified with 2N HCl, extracted with Et2O and the residue on evaporation recrystd. from 1:3 Et2O-petr. ether gave VI. VI (0.44 g.) and 2.9 g. KOH in 2.5 ml. 80% N2H4.H2O and 5 ml. (HOCH2CH2)2O refluxed 1 hr. and the mixture slowly distilled to 175° inner temperature, the residual mixture refluxed 7 hrs. and diluted with H2O, washed with Et2O and the aqueous solution acidified with 6NHCl, extracted with Et2O and the H2O-washed and dried extract evaporated, the residue (0.34 g.) chromatographed in

C6H6 over silica gel and eluted with 20: 1 C6H6Et2O gave 0.34 g. oily PhCH2CH2CHMeCH2-CO2H, b0.6 210°; anilide m. 109-111° p-toluide m. 107-8°. EtMgBr (from 2.43 g. Mg) in 80 ml. Et2O stirred (N atmospheric) with dropwise addition of 11.2 g. PhC.tplbond.CH in 20 ml. dry C6H6 and the mixture refluxed 2 hrs., treated dropwise at 20° with 12.7 g. N-acetylpiperidine (VIa) in 50 ml. dry C6H6 and stirred 17 hrs., treated at 0° (ice bath) with 200 ml. 2N H2SO4 and shaken 24 hrs., extracted 3 times with 100 ml. Et2O and the extract washed with 0.6M aqueous NaHCO3 and H2O, evaporated and the residue distilled gave 1.96 g. VIa, b0.8 67-70% and 1.20 g. PhC.tplbond.CAc (VII), b0.8 75-6° μ, 2208, 1681 cm.-1 (CCl4), λ 212,216, 236,259,270, 283 mμ (ε 12,520, 13,500, 7100, 13,250, 17,450, 13,550, C6H12). PhC.tplbond.CMgBr (from 12.0 g. PhC.tplbond.CH) at 0° in C6H6-Et2O stirred with dropwise addition of 6.16 g. freshly distilled AcH in 40 ml. dry C6H6 and the mixture stirred 17 hrs. at 20° refluxed 30 min. and hydrolyzed with 100 ml. 2N H2SO4, the products extracted and the residue on removal of solvents distilled gave 2.37 g. PhC.tplbond.CH, b20 45° and 11.13 g. PhC.tplbond.CCHMeOH, b20 140-1° n21D 1.5634, μ 3333, 2237, 2208 cm.-1 (neat). The alc. stirred at - 15° in 33.5 ml. Et2O and treated dropwise below 25° with 7.67 g. Na2Cr2O7.2H2O and 5.76 ml. concentrated H2SO4 in H2O (total volume 38.5 ml.) and the mixture stirred 4 hrs. at 20°, the Et2O layer and the Et2O washings combined and washed with aqueous NaHCO3 and H2O, the dried extract evaporated and the residue distilled, the impure VII (7.78 g., b0.15 61-5°) shaken 17 hrs. with 16 g. 45% aqueous NaHSO3 and the precipitate washed with Et2O, the dried material (5.02 g.) hydrolyzed with 35 ml. saturated aqueous Na2CO3 and the aqueous solution extracted with Et2O gave 2.48 g. VII, b0.01 44-5°. PhC.tplbond.CH (10.2 g.), 21.1 g. MeC(OEt)3, and 1.0 g. freshly fused ZnCl2 heated slowly (8 hrs.) to 180° with loss of 4.6 g. EtOH, the mixture poured into H2O and extracted with Et2O, the residue on evaporation distilled, and the fraction (9.21 g., b0.01 61-3°) sublimed at 75°/0.01 mm. gave 6.77 g. VII diethyl ketal, b0.01 60° shaken with 55 ml. 30% aqueous tartaric acid 7 days at 20°, extracted with Et2O, and the ketone distilled to yield 3.75 g. pure VII, b0.01 43°. VII (1.0 g.) and 2.9 g. Ph3P:CHCO2Me refluxed 24 hrs. in 47 ml. C6H6 and the C6H6 evaporated in vacuo, the residue taken up in Et2O and the crystalline Ph3PO filtered off, the filtrate evaporated and the residue extracted with hot pert. ether, the solution **refrigerated** and filtered from Ph3PO, the filtrate evaporated and the residue distilled gave 0.92 g. of a mixture of geometrical isomers of PhC.tplbond.CCMe:CHCO2Me, b0.01 82-4°, λ 220, 240, 251, 297 mμ (ε 15,900, 9150, 9750, 16,600), v 2208, 1724, 1613 cm.-1 (CCl4). The mixture (2.0 g.) in 16 ml. dioxane shaken 2 hrs. in 24 ml. 0.5N NaOH and kept 16 hrs., washed 4 times with 15 ml. Et2O and acidified with 23 ml. 2N HCl, extracted with Et2O and the oily mixed acids (1.85 g.) taken up in 10 ml. MeOH, treated with 4 drops of 1% aqueous AgNO3 and kept 1.5 hrs. at 20° evaporated and the residue taken up in Et2O, washed with 0.5M aqueous NaHCO3, and the dried Et2O solution evaporated gave 0.82 g. yellow crystalline V. The alkaline washings acidified and extracted with Et2O, the solid (0.75 g., m. 67-129°) chromatographed in C6H6 over silica gel and eluted with C6H6-Et2O gave 0.27 g. trans-PhC.tplbond.CCMe:CHCO2H, m. 131-3°, λ 202,

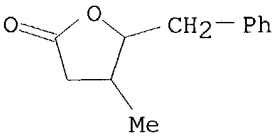
220, 291-2 mμ (ε 20,100, 13,200, 22,200), μ 2215, 1689 cm.-1 (C2Cl4), 0.36 g. V, and 0.10 g. mixture An attempted synthesis of 1-methyl-3-phenylpropargylidenemalonic acid (for further cyclization to α-carboxy-β-methylbutenolide) by condensation of VII and H2C(CO2H)2 gave a neg. result. VII (0.38 g.), 0.67 g. NCCH2CO2H, and 2 ml. AcOH heated (N atmospheric) 82 hrs. at 100° and diluted with 3 ml. H2O and 3 ml. petr. ether, filtered, and the washed residue recrystd. from C6H6 gave 0.15 g. II (R = CN, R' = H), hydrolyzed (0.10 g.) by heating 3 hrs. at 100° in 2.5 ml. AcOH and 3 ml. 60% H2SO4 to IV. The β-methylbutenolide structure of the compds. I and II was also established by a study of their hydrogenated derivs. (VIII). IV (200 mg.) in 33 ml. absolute alc. and 2 ml. H2O containing 75 mg. KOH hydrogenated at 14°/752 mm. with 33 mg. PtO2 and adsorption of 2.08 moles H, the mixture treated with 0.27 ml. 2N HCl and the filtered solution evaporated in vacuo, the residue taken up in 30 ml. H2O, acidified with 2N HCl, extracted with 1:10 CHCl3-H2O, and the oily product rubbed with Et2O gave 90 mg. VIII (R = CO2H) (IX), m. 123-7°, ν 1783, 1721 cm.-1 (CH-Cl3). The Et2O solution extracted with aqueous NaHCO3 and the alkaline extract acidified, extracted with Et2O, and the sirupy product chromatographed over silica gel yielded 40% stereoisomeric mixture of acids. III (2.0 g.) in 75 ml. alc. hydrogenated over 0.1 g. PtO2 and the filtered solution evaporated gave a colorless, fluid resin VIII (R = CO2H), b0.01 140°, refluxed (2.0 g.) with 2.0 g. KOH in 20 ml. alc. 1 hr. and the cooled mixture filtered, the K salt taken up in H2O and acidified with 22N HCl to yield 0.9 g. IX. IX (2.0 g.) heated 30 min. at 140° in vacuo and the residue distilled gave 0.8 g. VIII (R = H) (X), b0.75 130°, ν 1779 cm.-1 V (1.0 g.) in 50 ml. alc. hydrogenated over 60 mg. PrO2 and the filtered solution evaporated gave a colorless oil, b0.75 130°, possibly isomeric with X or a mixture X (2.0 g.), 40 ml. 40% HI, and 40 ml. AcOH heated 6 hrs. at 160° in a sealed tube and the cooled product diluted with H2O, treated with aqueous NaHSO3 and diluted with Et2O, the dried Et2O evaporated, and the oily product distilled yielded PhCH2CH2-CHMeCH2CO2H, b0.6 210°; anilide m. 109-11°; p-toluide m. 107-8°. X (1.90 g.) in 20 ml. Et2O and an excess of a Grignard reagent (prepared by addition of p-MeC6H-4NH2 to EtMgBr in Et2O) refluxed 30 min., diluted with 70 ml. Et2O and the cooled solution washed with 2N HCl and with H2O, the dried Et2O evaporated and the residue crystallized from Et2O gave 1.30 g. p-MeC6H4NHCO-CH2CHMeCH(OH)CH2Ph, m. 157-9°. Preparation of PhCH2CO(CH2)3CO2H (XI), m. 59-61° (semicarbazone m. 172-3°) and its Wolff-Kishner reduction gave Ph(CH-2)5CO2H, b0.6 132°, infrared spectrum similar to but differing from that of PhCH2CH2CHMeCH2CO-2H. XI (0.50 g.) in 10 ml. absolute alc. hydrogenated with 0.025 g. prereduced PtO2, the oily product (0.50 g.) taken up in Et2O and refluxed 30 min. with a Grignard reagent (prepared by addition of p-MeC6H-4NH2 to EtMgBr from 0.10 g. Mg in 25 ml. Et2O), the mixture diluted with Et2O and washed with 2N HCl and H2O, dried and evaporated gave PhCH2CH(OH)(CH2)3CONHC6H4Me-p, m. 129-30°. Further examples of the methylation reaction were studied and comments made on the recorded ultraviolet and infrared spectra. The reaction mechanism was dis- cussed.

IT Hydrogenation
(of (β-hydroxy-α-methylcinnamylidene)malonic acid γ-lactone)

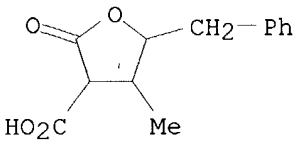
IT Spectra, infrared
Spectra, visible and ultraviolet

(of butanolides, butenolides and related compds.)
IT Methylation
(of ethylene trisubstituted derivs.)
IT Olefins
(reactions of, with diazomethane)
IT 2-Penten-4-ynoic acid, 3-methyl-5-phenyl-, methyl ester, stereoisomers
2-Penten-4-ynoic acid, 3-methyl-5-phenyl-, trans-
Malonic acid, (p-chloro-β-hydroxy-α-methyloinnamylidene)-, γ-lactone
Malonic acid, (p-chloro-β-hydroxy-α-methyloinnamylidene)-, γ-lactone, Me ester
Succinic acid, 2,3-di-p-tolyl-, diethyl ester, stereoisomers
Succinic acid, 2,3-di-p-tolyl-, stereoisomers
Succinic acid, 2-phenyl-3-m-tolyl-, diethyl ester, stereoisomers
Succinic acid, 2-phenyl-3-m-tolyl-, stereoisomers
IT 1314-15-4, Platinum oxide, PtO2
(catalysts, in hydrogenation of (β-hydroxy-α-methylcinnamylidene)malonic acid γ-lactone)
IT 74-85-1, Ethylene
(derivs., methylation of trisubstituted)
IT 1817-57-8, 3-Butyn-2-one, 4-phenyl- 2939-15-3, Malonic acid, (β-hydroxy-α-methylcinnamylidene)-, γ-lactone 2939-16-4, Malonic acid, (β-hydroxy-p,α-dimethylcinnamylidene)-, γ-lactone 91368-39-7, 2,4-Pentadienoic acid, 4-hydroxy-3-methyl-5-phenyl-, γ-lactone **91496-11-6**, Valeric acid, 4-hydroxy-3-methyl-5-phenyl-, γ-lactone 91962-67-3, 1,3-Cyclopentanedione, 4-methyl-2-phenyl- 92164-18-6, Malonic acid, (β-hydroxy-α-methyl-p-nitrocinnamylidene)-, γ-lactone, Me ester 92254-65-4, Malonic acid, (β-hydroxy-α-methylcinnamylidene)-, γ-lactone, Me ester 92549-58-1, Malonic acid, (β-hydroxy-p,α-dimethylcinnamylidene)-, γ-lactone, Me ester 92856-63-8, Succinic acid, 2-(p-nitrophenyl)-3-phenyl- 93137-94-1, 2,4-Pentadienoic acid, 2-cyano-4-hydroxy-3-methyl-5-phenyl-, γ-lactone 93737-91-8, Succinic acid, 2-methyl-2-(phenylacetyl)-, diethyl ester 93878-43-4, Succinic acid, 2,3-di-o-tolyl- 93878-46-7, Succinic acid, 2-o-tolyl-3-p-tolyl- 93878-78-5, Succinic acid, 2-(p-methoxyphenyl)-3-p-tolyl- 94685-58-2, Succinic acid, 2-(p-nitrophenyl)-3-phenyl-, diethyl ester 94914-09-7, p-Valerotoluidide, 3-methyl-5-phenyl- 95002-39-4, Succinic acid, 2-phenyl-3-p-tolyl-, diethyl ester 95156-78-8, Succinic acid, 2,3-di-m-tolyl- 95156-79-9, Succinic acid, 2-m-tolyl-3-p-tolyl- 95280-72-1, Succinic acid, 2-phenyl-3-p-tolyl- 95622-56-3, 1-Naphthalenesuccinic acid, β-phenyl-, diethyl ester 95947-80-1, p-Valerotoluidide, 4-hydroxy-3-methyl-5-phenyl- 97081-40-8, 1-Naphthalenesuccinic acid, β-phenyl- 97116-28-4, Succinic acid, 2,3-di-o-tolyl-, diethyl ester 97116-29-5, Succinic acid, 2-o-tolyl-3-p-tolyl-, diethyl ester 98333-21-2, Succinic acid, 2,3-di-m-tolyl-, diethyl ester 98333-22-3, Succinic acid, 2-m-tolyl-3-p-tolyl-, diethyl ester 98333-28-9, Succinic acid, 2-(p-methoxyphenyl)-3-p-tolyl-, diethyl ester 100258-98-8, p-Hexanotoluidide, 5-hydroxy-6-phenyl-
(preparation of)
IT 334-88-3, Methane, diazo
(reactions of, with olefins)
IT **93139-66-3**, Malonic acid, (2-hydroxy-1-methyl-3-phenylpropyl)-, γ-lactone
(stereoisomers)
IT **91496-11-6**, Valeric acid, 4-hydroxy-3-methyl-5-phenyl-,

γ-lactone
(preparation of)
RN 91496-11-6 HCAPLUS
CN Valeric acid, 4-hydroxy-3-methyl-5-phenyl-, γ-lactone (7CI) (CA INDEX NAME)



IT **93139-66-3**, Malonic acid, (2-hydroxy-1-methyl-3-phenylpropyl)-, γ-lactone
(stereoisomers)
RN 93139-66-3 HCAPLUS
CN Malonic acid, (2-hydroxy-1-methyl-3-phenylpropyl)-, γ-lactone (7CI) (CA INDEX NAME)



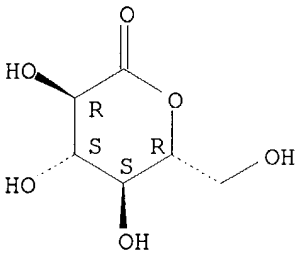
L23 ANSWER 29 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1961:9919 HCAPLUS
DN 55:9919
OREF 55:1964f-g
ED Entered STN: 22 Apr 2001
TI Alginate **compositions** for making instant cold-milk puddings
IN Hunter, Austin R.; Rocks, James K.
PA Kelco Co.
DT Patent
LA Unavailable
CC 12 (Foods)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2949366		19600816	US	

AB A combination of a H2O-soluble alginate, a sequestering agent, and a small amount of a slowly dissolving acid, such as fumaric or adipic acid, or a substance that slowly hydrolyzes in the presence of H2O to give an acid, such as glucous-δ-lactone (I), or upon the addition of an acid salt, such as K bitartrate, produces a highly satisfactory cold-milk pudding **composition** For example, Na phosphoalginate (II) (40% dispersing agent) 5.0, I 0.8, and skim-milk solids 24.2 g. produced a smooth, firm pudding after stirring with a cup of water and **refrigerating** for 30 min. The II is made from alginic acid and Na3PO4.
IT Puddings
(alginate compns. for instant milk)
IT Alginic acid, sodium phosphate
(instant cold-milk puddings containing)

IT **90-80-2**, Gluconic acid, δ-lactone
(instant cold-milk puddings containing)
IT 9005-32-7, Alginic acid
(salts, instant cold-milk pudding containing)
IT **90-80-2**, Gluconic acid, δ-lactone
(instant cold-milk puddings containing)
RN 90-80-2 HCAPLUS
CN D-Gluconic acid, δ-lactone (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L23 ANSWER 30 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1959:23485 HCAPLUS
DN 53:23485
OREF 53:4344h-i,4345a-i,4346a-i,4347a-i,4348a-b
ED Entered STN: 22 Apr 2001
TI Dipterocarpol. I. Preparation of 8,14-dimethyl-18-nortestosterone
AU Crabbe, Pierre; Ourisson, Guy; Takahashi, Takeyoshi
CS Univ. Strasbourg, Fr.
SO Tetrahedron (1958), 3, 279-302
CODEN: TETRAB; ISSN: 0040-4020
DT Journal
LA French
CC 10J (Organic Chemistry: Steroids)
AB A tetracyclic triterpene (I) isolated from gurjun balsam, the viscous oleoresins of Vietnamese Dipterocarpus Dyeri, D. alatus, D. intricatus, and D. artocarpifolius, was identified as van Itallie's dipterocarpol (C.A. 7, 477) and the hydroxydammarenone-II of Mills and Werner (C.A. 50,8703i) by origin, **composition**, and comparison of phys. consts. Infrared spectra were made of all compds., ultraviolet spectra determined in 95% alc. or cyclohexane, rotations measured at 18-22° with the yellow Hg line (5791A), and m.ps. determined in capillary tubes except as indicated. The nomenclature was based on the dammarane skeleton proposed by Mills (C.A. 51, 8042h), and the symbol 20ξ2 used to indicate the derivs. of the dipterocarpol-II series. The side chain of I was degraded to give the known Me ketone, 3β-hydroxy-20-hexakisnordammaranone (II) by 3 different methods. The oleoresin centrifuged and filtered in vacuo, the residue washed with ligroine or C6H14 and filtered through Al2O3, the filtrate clarified (active C), evaporated, and the product crystallized (EtOH or
EtOAc) gave I, 20ξ2-hydroxy-23-dammaren-3-one, m. 127° (solidifying and m. 135-6°), [α]J 65° (c 3.7, CHCl3), λ 290 mμ (ε 32, alc.), ν 3620, 1695, 1420, 1370, 815 cm.-1, deep yellow with C(NO2)4; 2,4-dinitrophenylhydrazone, m. 162° (decomposition) (Kofler); semicarbazone, m. 206-7° (Kofler). I refluxed 18 hrs. with Ac2O-C5H5N and the product filtered in petr. ether

through Al2O3 gave 20,24-dammaradien-3-one, m. 70-1° (dammadienone (Mills) and van Itallie's "anhydrodipterocarpol"), ν 1695, 1640 cm.-1, and 20(22),24-dammaradien-3-one, m. 96° (Kofler), ν 1695 cm.-1 Oxidation of I by CrO3 according to Mills and Werner (loc. cit.) gave the known trisnor lactone (III), m. 183°. III (40 g.) in 500 ml. tetrahydrofuran (distilled over CaH2) stirred at 0° with portionwise addition of 14 g. LiAlH4, the mixture refluxed 1 hr., excess reagent decomposed with 20 ml. EtOAc and 20 ml. MeOH, the mixture diluted with H2O and 300 ml. solvent evaporated, the mixture filtered and the filter cake washed with C6H6-CHCl3, the extract concentrated, and the product (20 g.) crystallized (MeOH-H2O) gave 3β,20ξ2,24-trihydroxydammarane, m. 217-19° (Kofler), [α]J 23° (c 1.0, dioxane); 3,24-diacetate (IV), m. 124-7° (CH2Cl2-petr. ether), [α]J 32° (c 1.0, CHCl3). IV (800 mg.) kept 1 hr. at 20° in 20 ml. C5H5N and 3 ml. POCl3, the mixture poured carefully into ice H2O, the product (780 mg.) chromatographed on 10 g. Al2O3, and eluted with C6H6 gave 670 mg. of olefins, m. 119-24°, [α]J 26° (c 1.0, CHCl3), yellow color with C(NO2)4. The mixture ozonized in 50 ml. AcOH at room temperature to disappearance of color with C(NO2)4, diluted with H2O and heated 30 min. at 80°, the oily product (680 mg.) chromatographed on 15 g. Al2O3, and eluted with 4:1 petr. ether-C6H6 gave 110 mg. authentic II acetate (V). Several expts. gave about 40% V but no other identifiable products. Steam distillation of the ozonization product gave HCHO, identified as the 2,4-dinitrophenylhydrazone, m. 165°. II (980 mg.) in 30 ml. dioxane kept overnight with 360 mg. KBH4 in 20 ml. 1:1 H2O-dioxane, excess oxidant destroyed with AcOH and the solution diluted with H2O, the mixture extracted with Et2O, the extract evaporated, and the residue chromatographed in C6H6 on Al2O3 gave 900 mg. 3β-hydroxytrisnordammaran-20ξ2,24-olide (VI), m. 205-6° (CHCl3-petr. ether), [α]J 39° (c 1.4, CHCl3); 3β-acetate (VII), m. 237-8° (CH2Cl2-MeOH), [α]J 50° (c 1.0, CHCl3). Mg (7.2 g.), and 47.1 g. PhBr refluxed 1 hr. in 1.50 ml. Et2O with dropwise addition of 13.8 g. VII in 200 ml. dry C6H6 and the mixture refluxed 2 hrs., treated at 0° with ice and saturated aqueous NH4Cl, the H2O-washed organic phase evaporated, the residue steam-distilled, and the **refrigerated** residue recrystd. (C6H6-petr. ether) gave 13.5 g. 3β,20ξ2-24-trihydroxy-24,24-diphenyltrisnordammarane, m. 194°, [α]J 32° (c 1.0, CHCl3); 3β-acetate (VIII), m. 185-6°, [α]J 34° (c 1.0, CHCl3), λ 243, 249, 255, 259, 265 mμ (ε 328, 424, 511, 677, 461, alc.). VIII (800 mg.) in 40 ml. AcOH heated 6 hrs. at 80° with 80 mg. p-MeC6H4SO3H with periodic spectrographic examination of 0.01 ml. samples in 10 ml. alc. at round 304 mμ, the cooled solution diluted with H2O, the filtered mixture extracted with Et2O, the isolated fractions chromatographed on 60 g. Al2O3, and eluted with 9:1 petr. ether-C6H6 yielded 73% 3β-acetoxy-24,24-diphenyl-20(22),23-trisnordammaradiene (IX), m. 120-3° (CH2Cl2MeOH), [α]J 4° (c 2.0, CHCl3), λ 305 mμ (ε 28,200, alc.), 262, 304, 306, 310 mμ (ε 11,000, 27,100, 27,000, 26,900, C6H14), saponified by refluxing 90 min. with KOH in 1:1 MeOH-dioxane and purified by chromatography on Al2O3 to give the corresponding alc., [α]J -7° (c 2.0, CHCl3). Further elution with 1:1 petr. ether-C6H6 yielded 26% 3β-acetoxy-24,24-diphenyl-20ξ2,24-epoxytrisnordammarane (X), m. 231-1.5° (CHCl3-MeOH), [α]J 24° (c 1.2, CHCl3), λ 260 mμ (ε 875,

alc.), saponified with KOH in MeOH-dioxane to the alc., m. 195° (CHCl3-petr. ether), [α]J 12° (c 2.0, CHCl3). VIII (500 mg.) in 10 ml. AcOH kept several hrs. with 800 mg. Na2Cr2O7.2H2O in 10 ml. AcOH at 25° and the crystalline product recrystd. (CHCl3-MeOH) gave 458 mg. X, also obtained in 70% yield by refluxing VIII 38 hrs. (CO2H)2 in AcOH (N atmospheric). X (1 g.) in 50 ml. AcOH heated 24 hrs. with 90 mg. p-MeC6H4SO3H at 80°, diluted with H2O, and the product chromatographed yielded 56% IX and 40% X. IX (310 mg.) in 20 ml. 1:1 CH2Cl2-AcOH stirred magnetically at 0° with dropwise addition of 250 mg. CrO3 in 2.4 ml. 5:1 AcOH-H2O and the stirring continued 1 hr. at 0°, excess CrO3 destroyed with Na2S2O5, the solvents evaporated, the residue taken up in a min. of CH2Cl2 and the solution diluted with Et2O, the isolated product chromatographed on Al2O3, and eluted with petr. ether gave initially 69 mg. β,β-diphenylacrolein, m. 40-7°; 2,4-dinitrophenylhydrazone, m. 195°. Further elution with petr. ether and petr. ether-C6H6 yielded 181 mg. V, m. 204-5°, [α]J 67° (c 1.2, CHCl3), saponified at room temperature to the known II. Saponification of VII and isolation by dilution with H2O and slow acidification with increasingly diluted HCl gave the corresponding 3β,20ξ2-dihydroxytrisnordammarane-24-carboxylic acid (XI), m. 180-3° (with loss of H2O, m. 201-2°, after solidification), [α]J 41° (c 1.0, dioxane), ν 1706 cm.-1 (CHCl3). Treatment of the undild. saponification solution with excess HCl or acidification of XI in MeOH with dilute HCl gave the corresponding lactone VI, ν 1765 cm.-1 (CHCl3), also obtained by reduction of III with KBH4 in 1:1 dioxane-H2O. Acetylation of VI regenerated VII. The degradation of the side chain of I was completed by cleavage of II with CF3CO3H in the presence of Na2HPO4 (C.A. 50, 803e). CH2Cl2 (50 ml.) containing 1.5 ml. 85% H2O2 treated instantaneously with 9 ml. (CF3CO)2O at 0° and the mixture stirred with rise of temperature to 20°, the homogeneous solution treated dropwise in 15 min. at room temperature with 3.17 g. II in 50 ml. CH2Cl2 containing 24 g. anhydrous Na2HPO4 (with external cooling), the mixture treated cautiously (external cooling) with 10% aqueous Na2CO3 and 200 ml. Et2O, the dried organic phase evaporated, the residual oil (3.59 g.) chromatographed on 100 g. Al2O3, and eluted with Et2O yielded 77% 17β-acetoxy-3β-hydroxyoctakisnordammarane (XII), m. 198-9.5°, [α]J 54° (c 1.0, CHCl3); 3β,17β-diacetate, m. 161° (MeOH-H2O), [α]J 59° (c 1.0, CHCl3). Further elution with Et2O gave 800 mg. 3β,17β-dihydroxyoctakisnordammarane, m. 209-10° (MeOH-H2O), [α]J 47° (C 1.0, CHCl3), also obtained by saponifying XII. The preparation of the title compound (XIII) with the same tetracyclic skeleton and the same stereochem. structure as I was accomplished by modification of ring A of XII following model expts. on the ring A of the lactone VI and of the Me ketone II. VI (2 g.) in 400 ml. dry C6H6 distilled with loss of 50 ml. C6H6 and the H2O-free solution treated at 0° with 2.8 g. freshly sublimed PCl5, the suspension stirred magnetically 1 hr. and bubbled with N, the solution stirred vigorously with 350 ml. 10% aqueous Na2CO3, the H2O-washed organic layer filtered through Al2O3, dried (Na2CO3), and evaporated gave 1.98 g. oil, recrystd. (CH2Cl2-MeOH) to give neo-A-3-trisnordammaren-20ξ2,24-olide (XIV), m. 168-70°, [α]J 37° (c 1.0, dioxane). XIV (500 mg.) in 5 ml. CH2Cl2 saturated 2 hrs. with dry HCl at 10° and the solution washed with H2O and 10% aqueous Na2CO3, the dried solution evaporated, and the product kept

several days in CH2Cl2-petr. ether gave the isomeric neo-A-3(5)-trisnordammaren-20ξ2,24-olide (XIVa), m. 108-12°, [α]J 56° (c 1.0, CHCl3), weakly pos. Beilstein reaction. Analogous treatment of VI with PCl5 under N without bubbling gave a mixture of XIV and XIVa. XIV (1.5 g.) in 20 ml. CH2Cl2 ozonized to permanent blue coloration, treated at 20° with 10 ml. AcOH and stirred magnetically with portionwise addition of 3 g. powdered Zn., the product (neg. starch-iodide reaction) chromatographed on 25 g. Al2O3, and eluted with 1:1 petr. ether-C6H6 gave 920 mg. trisnor-A(4)-5β-3-trisnordammaron-20ξ2-24-olide (XV), m. 194-6° (CH2Cl2MeOH), [α]J 185° (c 1.0, CHCl3), λ 279, 288, 299, 310 mμ (ε 33, 35, 34, 28, C6H14), with a characteristic fine structure in nonpolar solvents similar to that of cyclopentanone. Further elution with 9:1 MeOH-AcOH gave 550 mg. corresponding hydroxy acid, m. 205-7° (MeOH), treated in MeOH with a trace of HCl, chromatographed rapidly, and eluted with petr. ether-C6H6 to give XV. II (1 g.) treated with PCl5 as for VI, chromatographed, and eluted with petr. ether gave 700 mg. neo-A-3-hexakisnordammaren-20-one (XVI), m. 120-1°, [α]J 52° (c 0.9, dioxane), isomerized in MeOH by dry HCl in 20 min. at 0° to neo-A-3(5)-hexakisnordammaren-20-one, m. 72.5-74° (MeOH), [α]J 102° (c 1.0, CHCl3). XVI (700 mg.) ozonized, the product chromatographed on 40 g. Al2O3, and eluted with 9:1 C6H6-Et2O gave 220 mg. trisnor-A (4)-5β,3,20-hexakisnordammaradione, m. 156-8°, [α]J 195° (c 1.0, CHCl3). Further elution with 9:1 MeOH-AcOH gave 225 mg. amorphous acid, ν 1690, 1739 cm.-1, methylated with CH2N2 in Et2O to give an amorphous material, ν 1740 cm.-1, and probably the C-20 acid (cf. Harries, C.A. 4, 2633). XII (2 g.) treated as for VI and the chromatographed product eluted with petr. ether yielded 1.14 g. 17β-acetoxyneo-A-3-octakisnordammarene (XVII), m. 141.5-43°, (MeOH), [α]J 43° (c 1.0, dioxane), saponified and the product chromatographed in 1:1 C6H6-Et2O on Al2O3 to give the alc., m. 125-6° (MeOH-H2O), [α]J 32° (c 1.0, dioxane). Ozonization of 880 mg. XVII and chromatography of the crude product on 20 g. Al2O3 gave 513 mg. 17β-acetoxytrisnor-A(4)-5β-3-octakisnordammarone (XVIII), m. 185-7°, [α]J 185° (c 1.0, CHCl3), saponified to the alc. ketone, m. 127-8° (MeOH), [α]J 213° (c 1.0, CHCl3). MeMgI (2.25 g. Mg and 6 ml. MeI in 20 ml. Et2O filtered through cotton) refluxed with addition of 333 mg. XVII in 20 ml. C6H6 and the refluxing continued 48 hrs., the Et2O evaporated and the C6H6 solution refluxed 1 hr., the isolated oily product (324 mg.) acetylated immediately with 4 ml. C5H5N and 5 ml. Ac2O, the crystalline product (360 mg.) chromatographed on 10 g. Al2O3, and eluted with petr. ether gave 112 mg. oily dehydration product. Elution with 10:1 petr. ether-Et2O yielded 77 mg. XVIII. The yield was larger in expts. made with shorter reflux periods and quant. in those made only in Et2O or with MeLi in tetrahydrofuran. Further elution with 5:1 pert. ether-Et2O gave 139 mg. 17β-acetoxy-3α-hydroxy-3α-methyl-A(4)-trisnor-(5β)-octakisnordammarane, (XVIII), m. 153-5° (petr. ether), [α]J 31° (c 0.3, CHCl3), saponified and the product chromatographed in 1:1 petr. ether-Et2O on Al2O3 to give the diol, m. 145-8° (pert. ether), [α]J 36° (c 0.5, CHCl3). Dry CHCl3 (10 ml.) saturated with dry HCl containing 100 mg. XVIII kept 1 hr. at room temperature with shift of [α]J from 30° to 75°, the solution poured into H2O, extracted with Et2O, the oily product (98 mg.) chromatographed on 5 g. Al2O3, and eluted with petr. ether yielded 84% 17β-acetoxy-3-methyl-A(4)-trisnor-3(5)-octakisnordammarene (XIX), m. 90-1°, [α]J 75° (c 1.0, CHCl3). OsO4 (100 mg.) in 5 ml. Et2O kept 4 days at room temperature, the

solution evaporated in vacuo and the residue taken up in 10 ml. dry C6H6, the solution treated with excess LiAlH4 in Et2O, and the product crystallized (Et2O) gave 87 mg. 3-methyl-3α,5α,17β-trihydroxy-A(4)-trisnoroctakisnordammarane (XX), m. 126-8° (161-3° after loss of solvent), [α]J 20° (c 0.85, CHCl3); 17β-acetate, m. 138-9° (Et2O), [α]J 28° (c 0.8, CHCl3). XX (87 mg.) in 5 ml. CHCl3 kept 1 hr. at room temperature with 96 mg. Pb(OAc)4 in 5 ml. AcOH, the mixture treated with 24 mg. Pb(OAc)4 in 1 ml. AcOH and kept overnight, excess reagent destroyed by 1 drop HOCH2CH2OH, and the product isolated yielded 90 mg. pale yellow oily diketone (XXI). Testosterone (80 mg.) and 90 mg. XXI each taken up in 10 ml. 10% KOH in MeOH and heated several min. at 80° to comparable intense yellow enolate solns., the solns. kept 1 hr. until the extinction coefficient at 242 mμ corresponded to total enolization, the oily product (96 mg.) from XXI isolated, chromatographed on 5 g. Al2O3, eluted with 10:1 C6H6-Et2O, and crystallized (petr. ether) gave 62 mg. XIII, 17β-hydroxy-28,29-bisnor-4-dammaren-3-one, m. 208-10°, [α]J 140° (c 1.1, CHCl3), λ 242 mμ (ε 19,300, alc.), ν 3600, 1670, 1620 cm.-1 (CH2Cl2). V was obtained by Mills (loc. cit.) in a 1:1 mixture with the corresponding 2-nor-20-ketone acetate (XXII). The configuration at C-17 in V and XXII is the same as that in I as shown by the action of MeMgI on XXII. MeMgI (250 mg. Mg and 1 ml. MeI in 10 ml. Et2O) treated with 239 mg. XXII, the mixture refluxed 3 hrs. with 10 ml. C6H6, decomposed and the isolated product (246 mg.) acetylated at room temperature, the acetates chromatographed on 9 g. Al2O3, eluted with 1:9 to 1:1 C6H6-petr. ether, the crystalline fractions (185 mg.) recrystd. separately in MeOH-H2O, reunited, and recrystd. gave an authentic acetate identical with the dammaranediol-II monoacetate, m. 106-8°, obtained by Mills from I. Triangulation by crystallization of the residues from the mother liquors in MeOH-H2O and MeNO2 gave a small amount of the C-20 epimer, m. 142-4°, described by Mills as the dammaranediol-I monoacetate The 1:1 mixture (5 g.) of ethylenic acetates (Mills, loc. cit.) ozonized 1 hr. at room temperature in 20 ml. CH2Cl2 and 100 ml. AcOH, the ozonides diluted with H2O and heated 45 min. at 80° with passage of warm air through the solution, the crystalline product washed with H2O, the dried material (4.8 g.) chromatographed on 48 g. Al2O3 and, eluted with Et2O-petr. ether gave 3.48 g. pure mixture (XXIII) of V and XXII. (CF3CO)2O (3.6 ml.) and 0.64 ml. 85% H2O2 in 45 ml. CH2Cl2 at 0° treated with 3.48 g. XXIII in 40 ml. CH2Cl2 containing 6.15 g. anhydrous Na2HPO4, the mixture brought to room temperature and kept 15 min., decomposed by addition of 10% Na2CO3, and the product isolated gave 3.6 g. crude mixture of diesters, 3β,17β-diacetoxyoctakisnordammarane and 3β-acetoxy-17β-heptoyl-octakisnordammarane, saponified by refluxing 1 hr. with 1.5 g. NaOH in 15 ml. 95% alc., diluting the solution with H2O, chromatographing the isolated product (2.59 g.) on 25 g. Al2O3, and eluting gave 2.20 g. 3β,17β-dihydroxyoctakisnordammarane in 62% over-all yield from the mixture of ethylenic acetates. Although the corresponding lanosterol derivative has a marked progestational activity (Isler, et al., C.A. 50, 15570b) the analogous II is inactive in the Clauberg test. Similarly XIII, the analog of testosterone, has neither androgenic nor anabolic activity in the Herschberger test. Accordingly it is possible that the stereochemistry of XIII does not correspond to that of testosterone.

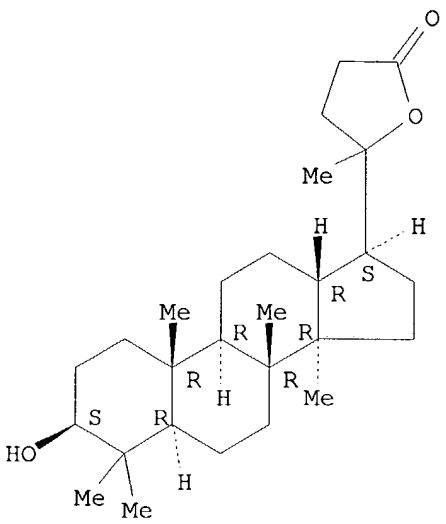
IT Dipterocarpus
(dipterocarpol from)

IT Stereochemistry

(of dipterocarpol)
IT Infrared spectra
Ultraviolet and visible, spectra
(of dipterocarpol and derivs.)
IT Dammara-20(22),24-dien-3-one
Heptanoic acid, ester with 3-acetate of octanordammaran-3β,17β-diol
Hexanordammaran-20-one, 3β-hydroxy-
Hexanordammaran-20-one, 3β-hydroxy-, acetate
Neo-A-hexanordammar-3(5)-en-20-one
Neo-A-hexanordammar-3-en-20-one
Neo-A-octanordammar-3-en-17β(?)-ol
Neo-A-octanordammar-3-en-17β(?)-ol, acetate
Neo-A-trinordammar-3(5)-en-24-oic acid, 20ξ2-hydroxy-, γ-lactone
Neo-A-trinordammar-3-en-24-oic acid, 20ξ2-hydroxy-, γ-lactone
Trinor-A(4)-5β-octanordammaran-3-one, 17β(?)-hydroxy-
Trinor-A(4)-trinor-5β-dammaran-24-oic acid, 20ξ2-hydroxy-3-oxo-, γ-lactone
Trinordammaran-24-oic acid, 20ξ2-hydroxy-3-oxo-, γ-lactone
Trinordammaran-24-oic acid, 3β,20ξ2-dihydroxy-, 3-acetate
Trinordammarane-3β,20ξ2,24-triol, 3,24-diacetate
Trinordammarane-3β,20ξ2,24-triol, 24,24-diphenyl-
IT 471-69-2, Dipterocarpol
(20ξ2-hydroxydammar-23-en-3-one as structure of)
IT 124402-77-3, Dammar-23-en-3-one, 20-hydroxy-
(and identity with dipterocarpol, and derivs.)
IT 96192-59-5, Octanordammarane-3β,17β-diol
(esters)
IT 1975-28-6, 18-Nor-5α-pregnan-20-one, 3β-hydroxy-4,4,8,14-tetramethyl-, acetate 3819-21-4, 18-Nor-5α-pregnan-20-one, 3β-hydroxy-4,4,8,14-tetramethyl- 16883-32-2, Dammara-20,24-dien-3-one 96192-59-5, Octanordammarane-3β,17β-diol 106409-40-9, Trinor-A(4)-5β-hexanordammarane-3,20-dione 106409-44-3, Trinor-A(4)-5β-octanordammaran-3-one, 17β(?)-hydroxy-, acetate **107297-26-7**, Trinordammaran-24-oic acid, 3β,20ξ2-dihydroxy-, γ-lactone 108630-66-6, Trinordammara-20(22),23-dien-3β-ol, 24,24-diphenyl- 109015-24-9, Trinordammara-20(22),23-dien-3β-ol, 24,24-diphenyl-, acetate 109015-28-3, Trinordammaran-3β-ol, 20ξ2,24-epoxy-24,24-diphenyl-, acetate 109015-30-7, Trinordammarane-3β,20ξ2,24-triol, 24,24-diphenyl-, 3-acetate 109844-95-3, Trinordammaran-24-oic acid, 3β,20ξ2-dihydroxy- 109868-52-2, Trinordammarane-3β,20ξ2,24-triol 112507-79-6, 7H-Benz[e]inden-7-one, dodecahydro-3-hydroxy-6,9a,9b-trimethyl-6-(3-oxobutyl)-(?) 112743-97-2, 18-Norandrost-4-en-3-one, 17β-hydroxy-8,14-dimethyl- 112743-98-3, Octanor-A(4)-trinordammarane-3α,5α,17β(?)-triol, 3-methyl- 112743-99-4, Octanor-A(4)-trinor-5β-dammarane-3β, 17β(?)-diol, 3α-methyl- 114699-21-7, Octanor-A(4)-trinor-5β-dammarane-3β, 17β(?)-diol, 3α-methyl-, 17-acetate 114984-96-2, Octanor-A(4)-trinordammarane-3α,5α,17β(?)-triol, 3-methyl-, 17-acetate 119112-65-1, Octanor-A(4)-trinordammar-3(5)-en-17β(?)-ol, 3-methyl-, acetate 123237-70-7, 21-Nordammaran-20-one, 3-hydroxy-, acetate 124382-65-6, Trinor-A(4)-trinor-5β-dammaran-24-oic acid, 20ξ2-hydroxy-3-oxo-
(preparation of)
IT **107297-26-7**, Trinordammaran-24-oic acid, 3β,20ξ2-dihydroxy-, γ-lactone
(preparation of)

RN 107297-26-7 HCAPLUS
CN 18-Nor-5α,20ξ-cholanic acid, 3β,20-dihydroxy-4,4,8,14-tetramethyl-, γ-lactone (7CI) (CA INDEX NAME)

Absolute stereochemistry.



L23 ANSWER 31 OF 31 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1956:52566 HCAPLUS
DN 50:52566
OREF 50:10058a-i,10059a-i,10060a-i,10061a-e
ED Entered STN: 22 Apr 2001
TI Addition of maleic anhydride to styrene. Diene syntheses and substituting additions in the styrene series
AU Alder, Kurt; Schmitz-Josten, Robert; Broockmann, H.; Huhn, Kurt; Gabler, H.
CS Univ. Cologne, Germany
SO Ann. (1955), 595, 1-37
DT Journal
LA Unavailable
CC 10 (Organic Chemistry)
GI For diagram(s), see printed CA Issue.
AB The mechanism of adduct formation and stereochem implications are discussed in great detail. Styrene (I) (21 g.), 60 g. maleic anhydride (II), 0.5 g. p-C6H4(OH)2, and 0.25 g. iodine in 20 cc. C6H6 refluxed 27 hrs. at 130° gave a mixture of 13.3 g. (crude) 1,2-C10H6(CO2H)2 (III), m. 175-8°, and 13.2 g. (crude) 1,2-cis,cis-dicarboxy-1,2,3,4-tetrahydronaphthalene (IIIa), long needles, m. 182° (decomposition) (from H2O) (or 193°, when rapidly heated). The separation of III and IIIa is described fully. I (75 g.), 150 g. II, and 10 g. picric acid in 100 cc. C6H6 refluxed 35-45 hrs. on a steam bath, cooled gradually, **refrigerated** several days and the precipitate comminuted, filtered, triturated with warm C6H6, filtered, triturated with AcOEt-ligroine (1:1), and refiltered gave 120-135 g. of the mixture (IV); the combined mother liquors from IV diluted with C6H6 gave more IV, and, after filtration, were concentrated in vacuo and freed from residual I and II by distillation in a high vacuum; the resulting still residue (V) boiled with 500 cc. 20% aqueous

Na2CO3, extracted with Et2O to remove neutral matter, treated with C, and shaken with 120 g. Me2SO4 (in small portions) gave an oil, which, taken up in AcOEt, dried, evaporated, reesterified with 25 cc. Me2SO4 and 20 g. KOH in 100 cc. MeOH, and fractionated at 13 mm. gave 3 main fractions, of which the 1st 6.5 g., b13 220-45°, yielded III on saponification [isolated as the anhydride (IIIb), m. 168-9°]. The other 2 fractions (19.5 g.), b13 245-70°, and 19 g., b13 270-90°, yielded no definite compds. V, after methylation as above and removal of the di-Me maleate, gave 70 g. of a still residue which was heated 2 hrs. at 250° with 20 g. S and then distilled at 320°/13 mm. A fraction b13 220-50°, saponified and oxidized with H2O2, gave IIIb; a fraction b13 250-320° treated in aqueous KOH with H2O2, acidified, extracted with Et2O and the dried extract evaporated to 500 cc. gave 2.3 g. (crude) [3(or 4-)-carboxy-1-naphthyl]succinic acid (VI), m. poorly about 200° [tri-Me ester, C18H18O6, yellow leaflets, m. 97° (from MeOH)]. The mother liquors from VI evaporated to dryness, heated 2 hrs. with Ac2O, and distilled fractionally gave a small amount of IIIb and a mixture b13 250-310°, which crystallized from glacial AcOH; this, heated with Me2CO, gave 0.5 g. of an insol. acid, m. 270°, whose Me ester (C8H6O3)n, greenish yellow crystals, m. 121° (from MeOH, after treatment with C), was not identical with C10H5(CO2Me)3. IV (115 g.) was extracted in a Soxhlet with tetrahydrofuran (VII) (dried over Na) until about 10-20 g. IV remained undissolved in the thimble; the cooled extract gave about 40 g. crystalline matter which, filtered promptly, washed with VII, and recrystd. from VII, yielded "dianhydride A" (VIII), needles or prisms, m. 202-3° (also given as 204°), unreactive toward alkaline KMnO4. The insol. thimble residue after repeated crystallization from VII, Ac2O, or Me2CO gave "dianhydride B" (IX), m. 268° (decomposition), rapidly decolorizing alkaline KMnO4. The VII mother liquors contained mixts. of VIII and IX, which were evaporated and the residue heated at 80° with 1 l. H2O, giving 5 g. insol. crude IX and from the aqueous solution on concentration, the tetracarboxylic acid A, C16H16O8 (VIIIa), corresponding to VIII, fine needles, m. 176° (decomposition) (from H2O) (also given as 178°). After completed crystallization of VIIIa, the final mother liquors contained the very soluble, uncrystallizable tetracarboxylic acid B (IXa) corresponding to IX, which, heated in vacuo, lost 1 H2O, forming the corresponding monoanhydride dicarboxylic acid (IXb), m. 263° (decomposition) (from HCO2H followed by Me2CO), converted into IXa by hot H2O. Tetra-Me ester (X) of VIIIa, plates, m. 78° (from MeOH or ligroine). VIIIa reacted violently with a mixture of 5 parts Ac2O and 1 part AcCl, giving VIII. VIIIa (6 g.) heated 2 hrs. at 240° gave a glassy resin which, treated in Me2CO with C, gave 2 g. of a stereoisomer (XI) of VIII, C16- H12O6, m. 229-30° (from Ac2O, followed by Me2CO), which with MeOH and Me2SO4 gave the tetra-Me ester (XIa), C20-H24O8 (stereoisomer of X), flat prisms, m. 66°, giving a m.p. depression with X. X (4 g.) in 30 cc. MeOH refluxed 4 hrs. with 30 cc. 40% aqueous KOH, followed by addition of H2O, concentration, slight acidification with HCl, evaporation to dryness, extraction in a Soxhlet with Me2CO, and addition of BuOAc to the extract gave a stereoisomer (C16H16O8) (XII) of VIIIa, m. 220-1°, giving a tetra-Me ester, octahedrons, m. 79°, not identical with either X or XIa. XII warmed with Ac2O at 80-90° gave VIII. VIII (3 g.) heated 1 hr. at 230-40° and then in vacuo at 270° gave a distillate that, after treatment with hot aqueous Na2CO3 and H2O2, filtration, concentration, and acidification, gave 1.7 g. III (di-Me ester, m. 80°). VIIIa (11 g.) in 100 cc. H2O at 80° treated gradually with an aqueous solution of 50 g. KMnO4, heated on the steam bath until

oxidation was complete, filtered, evaporated in vacuo, acidified with HCl, extracted with Et2O, the extract evaporated, and the oily residue triturated with MeCN gave about 2 g. phthalic acid (partly free, partly as the anhydride). VIII (4 g.) in 25 cc. highly purified glacial AcOH heated to boiling, treated very gradually, with concomitant irradiation, with 8.6 g. Br in 20 cc. glacial AcOH, and refluxed about 2.5-3 hrs. gave 2.6 g. (crude) dianhydride of 1,2-dicarboxy-4-naphthylsuccinic acid (XIII), C16H8O6, m. 255° (decomposition) (from Ac2O or dioxane), which, heated with H2O or aqueous AcOH, gave the corresponding tetracarboxylic acid, C16H12O8.H2O, m. 230° (decomposition); tetra-Me ester, C20H20O8, b12 280° (with slight decomposition), m. 111-12° (from MeOH). The mother liquors from XIII yielded impure 1,2,4-C10H5(CO2H)3, (XIV). XIII (3 g.) in 200 cc. H2O and 3 cc. concentrated H2SO4 with 10 g. KMnO4 in 200 cc. H2O at 40° yielded CO2 and crude XIV, m. 280, separated from the MnO2 by dissolving the precipitate in aqueous H2SO3 evaporating, and adding HCl. Tri-Me ester (XV) of XIV m. 120° (from MeOH). PhCMe:CH2 (30 g.), 30 g. II, 1 g. picric acid, and 0.1 g. p-C6H4(OH)2 refluxed 12 hrs., and the solution separated from a brown oil (XVI), refluxed 12 hrs. longer, and evaporated in vacuo gave the anhydride, m. 222° (from AcOEt), of 1,3,4-MeC10H5(CO2H)2. XVI heated 1 hr. with 5 g. S and distilled at 220-50° gave a yellow resin, which, treated in warm aqueous NaOH with H2O2 to oxidize the S, yielded 12 g. 1,3,4-MeC10H5(CO2H)2, m. 225° (from AcOEt), 1.5 g. of which, in 500 cc. H2O neutralized with Na2CO3, warmed to 75°, shaken vigorously with a mixture (added in 1 portion) of 1.6 g. MgSO4 and 2.25 g. KMnO4, another similar mixture then added, and the cooled solution acidified with HCl, reduced with SO2, and concentrated in vacuo gave crude XIV (from which other components were extracted by boiling AcOEt), identified by conversion into XV. XV was also formed by adding II to Me atropate, and esterifying and dehydrogenating the product, but no details are given. VIIIa (20 g.) in 300 cc. glacial AcOH refluxed 24 hrs. with 18 g. SeO2, concentrated in vacuo, dissolved in 300 cc. H2O, treated with SO2 to complete the reduction to Se, heated, filtered, concentrated to 100 cc., and extracted with Et2O gave in the extract crude (1,2-dicarboxy-3,4-dihydro-4-naphthyl)succinic acid (XVII), m. about 200°, which, heated, without purification, 2 hrs. with Ac2O at 100° gave 15 g. of the corresponding dianhydride, C16H10O6, m. 195° (from AcOEt-ligroine). Tetra-Me ester of XVII m. 107°. Crude XIII (12 g.) in 60 cc. freshly distilled quinoline was heated slowly to 160° with 2 g. Adkins Cu chromite catalyst, 1 g. of the catalyst added when the CO2 evolution slackened at 190°, and the mixture taken to and maintained at 210° for 45 min.; the total CO2 evolved (1.1 l.) accounted only for 1.4 CO2H groups. The cooled mixture diluted with AcOEt, filtered, extracted with aqueous Na2CO3, methylated with Me2SO4, extracted with Et2O, methylated further with CH2N2, and fractionated in vacuo gave as the only product isolated from 2 main fractions 4 g. tri-Me ester (XVIII) of [1(or 2)-monocarboxy-4-naphthyl]succinic acid, C18H18O6, nacreous leaflets, m. 99° (from MeOH). Attempts to isolate another product from the mother liquors were unsuccessful. XVIII, saponified with alc. KOH and acidified gave the monocarboxy anhydride, C15H10O5, m. 224° (decomposition) (from glacial AcOH). VIII (12 g.) heated 15 min. at 260° (gas evolution), and the residue fractionated in vacuo gave acrylic acid (identified as the S-benzylisothiuronium salt, m. 167°, and by formation of a cyclopentadiene adduct which was converted into p-bromophenacyl 1,4-endomethylenecyclohexanecarboxylate, m.

92°, details for the formation of which are given). The main pyrolysis product from VIII was (2-hydroxy-3-naphthyl)acetic acid lactone, b13 210°, crystallizing on **refrigeration** (cf. Eistert, C.A. 30, 5214.3), for which no analyses are given. VIII (20 g.) in 150 cc. PhNO2 stirred gradually into a suspension of 40 g. AlCl3 in 150 cc. PhNO2 at room temperature, stirring continued 3-4 hrs., the mixture treated with ice-HCl, the crystalline product filtered, the PhNO2 phase washed successively with dilute HCl, H2O, and aqueous NaHCO3, the washings combined, acidified with HCl, and the precipitate combined with the original crystalline product gave 17-18 g. XIX, m. 288-95° (decomposition) (from AcOH). Heated with Me2SO4 in MeOH, XIX gave a tri-Me ester, C19H20O7, (XX), m. 171°. The oxotricarboxylic acid (5 g.) corresponding to XX (preparation and properties not given) refluxed 3 days with 20 g. Zn-Hg and 100 cc. "60%" HCl, evaporated to dryness in vacuo, treated with AcONa and dilute AcOH and with H2S, filtered, and the filtrate extracted with Et2O and evaporated gave 4 g. of an oil, which, heated 2 hrs. at 300° with a mixture of 1 g. Pd-C and 1.5 g. Cu chromite, then 1 hr. at 350°, and the cooled mixture extracted in a Soxhlet with AcOEt gave the hydrocarbon perinaphthindan, isolated as the picrate, m. 150° (cf. Craig, et al., C.A. 35, 5505.1). XI subjected to a Friedel-Crafts reaction, similar to that given above yielded an oxomonocarboxylic acid, C16H12O6, m. 242-44°, isomeric with XIX, giving a tri-Me ester, m. 151° (from MeOH), isomeric with XX. IX in boiling H2O was hydrolyzed very slowly to IXa, which in vacuo at 100° gave IXb; this boiled with Ac2O was reconverted into IX. The tetra-Me ester of IXa, needles, m. 163°, was best formed by warming IX with Me2SO4 in weakly alkaline aqueous or MeOH solution X (1 g.) with 1 g. S at 230° gave 0.4 g. III (di-Me ester, m. 81°). IXb (1 g.) heated 1 1/4 hrs. with 10 cc. H2O and 6 cc. H2SO4 and diluted with 100 cc. H2O gave 0.5 g. IIIa, fairly stable to alkaline KMnO4. IX boiled with 200 cc. H2O, cooled to 0° shaken with an excess of Br, and evaporated gave XXI (R = OH) (XXIa), crystallizing with 2 moles H2O, m. 250°, which, dried in vacuo at 100°, retained 1 mole H2O and m. 260° (decomposition). In MeOH with CH2N2, XXIa gave the tri-Me ester, m. 221°. XXIa refluxed 7 hrs. with Ac2O formed an acetylated anhydride, C18H16O9 (XXII), m. above 280° (from Ac2O). When this acetylation reaction was followed, prior to the crystallization of XXII, by heating with an excess of MeOH, evaporation to dryness, repetition of the MeOH addition, evaporation, and subsequent methylation in Et2O with CH2N2, the product was the monoacetyl tri-Me ester (XXIII) of XXIa, C21H24O10, felted needles, m. 196°. XXIII (1.5 g.) heated in vacuo to 250° gave a mixture of di-Me maleate and fumarate, b12 100-20°, and an oil, b12 200-40°, which, heated with concentrated HCl and evaporated in vacuo, formed IIIa. IX hydrolyzed to IXa, evaporated to 5 cc., heated 10 hrs. at 60° with about 35 g. 60% H2SO4, allowed to stand 8 days at room temperature, then diluted with an equal volume of H2O, and subjected to a series of concns. in vacuo with intermediate filtrations gave 2-2.5 g. XXI (R = H) (XXIb).2H2O, m. 285° (decomposition), stable to alkaline KMnO4; tri-Me ester, C19H22O8, m. 237-8° (from MeOH). When XXIb was heated several hrs. at 70° in glacial AcOH with H2O2 (with or without WO3), 70% was recovered; XXIb and AcOOH kept 14 days at 20° and then heated 3 hrs. at 100° remained practically unchanged. When the tri-Me ester of XXIb (6 g.) in 600 cc. glacial AcOH was ozonized 40 hrs., 50% was recovered unchanged; the concentrated mother

liquor treated with H2O and boneblack gave 0.2 g. of a compound C19H22O9, m. 208-9° (from H2O), which, in MeOH, failed to react with CH2N2. XXIa (2 g.) heated 0.5 hr. with a mixture of 8 cc. H2SO4 and 12 cc. H2O, evaporated, heated 1 hr. at 100°, and diluted with H2O gave 0.2 g. of a flocculent product, which, when methylated, formed the dilactone (XXIV), m. 249° (from MeOH). IX (2 g.) heated with 200 cc. H2O, treated with 1.5 cc. H2SO4 in 15 cc. H2O, cooled to 0°, and stirred vigorously with 2.6 g. KMnO4 in 150 cc. H2O gave 0.8 g. XXIa. IX (3 g.) treated at 0° with 1 volume HNO3 (d. 1.53) in 1 volume glacial AcOH, dissolved gradually, forming the flocculent compound (XXV), carbonizing without melting at 300-20° (after purification by washing with AcOH, then hot Me2CO). The original mother liquor poured into ice H2O yielded more XXV (total yield 1.5 g.). XXV was difficultly sol in most organic solvents, but dissolved slowly in boiling Ac2O; it reduced alkaline KMnO4. Crude XXV esterified by heating 8 hrs. with Me2SO4 in MeOH yielded the crystalline compound (XXVI), m. 242° (decomposition) (from MeOH), giving no test for nitrolic acid. The tetra-Me ester of IXa (6 g.) in 80 cc. AcOEt ozonized 1.5 hrs. at 0°, shaken with 20 cc. H2O, 20 cc. more H2O added, and air was blown through the mixture, the solution evaporated in vacuo, the residual oil shaken 5 hrs. with 1 g. Raney Ni and H at 170°/100 atmospheric, cooled, dissolved in MeOH, treated with C filtered, evaporated, the oil heated 0.5 hr. on the steam bath with 30 cc. HNO3 (d 1.4) until fuming ceased, then evaporated to 0.5 volume, treated with 2 vols. H2O, kept overnight at 0°, filtered, evaporated in vacuo, freed from HNO3 by means of HCHO, and the residue dissolved in MeCN and filtered gave on long standing a small amount of cis-1,trans-2, trans-3,cis-4-tetracarboxycyclohexane m. 224°, (from AcOEt); tetra-Me ester, m. 71° (from petr. ether), identical with an authentic sample and giving sharp m.p. depressions when mixed with each of 4 other known stereoisomeric tetracarbomethoxycyclohexanes. 48 references.

IT Synthesis
(diene, with styrene series)

IT Substitution
(in styrene series)

IT Stereochemistry
(of maleic adducts with styrenes)

IT 1,2,3,4-Cyclohexanetetracarboxylic acid, cis,trans,trans,cis-
1,2-Naphthalenedicarboxylic acid, 1,2,3,4-tetrahydro-, cis,cis-
1,2-Naphthalenedicarboxylic acid, 4-methyl-
1,2-Naphthalenedicarboxylic anhydride, 4-methyl-
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-octahydro-8-hydroxy-8a-nitro-, γ-lactone, trimethyl ester
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-octahydro-8a-hydroxy-, γ-lactone
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-octahydro-8a-hydroxy-, γ-lactone, tri-Me ester
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 1,4,4a,5,6,7,8,8a-octahydro-8-hydroxy-8a-nitro-
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 1,4,4a,5,6,7-hexahydro-
1-Naphthalenesuccinic acid, 3(or 4)-carboxy-
1-Naphthalenesuccinic acid, 3(or 4)-carboxy-, trimethyl ester
1-Naphthalenesuccinic acid, 3,4-dicarboxy-
1-Naphthalenesuccinic acid, 3,4-dicarboxy-, tetramethyl ester
1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2,3,4-tetrahydro-, tetra-Me esters

1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2-dihydro-
1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2-dihydro-, tetramethyl ester
1-Naphthalenesuccinic anhydride, 3(or 4)-carboxy-
1-Naphthalenesuccinic anhydride, 3,4-dicarboxy-, anhydride
1-Naphthalenesuccinic anhydride, 3,4-dicarboxy-1,2-dihydro-, anhydride
1H-9a,5-(Epoxymethano)-6,9-ethano-1,4-methano-2-benzoxepin-12,13-dicarboxylic acid, 3,4,5,5a,6,9-hexahydro-3,11-dioxo-, dimethyl ester
1H-Benzonaphthene, 2,3-dihydro-
1H-Benzonaphthene, 2,3-dihydro-, picrate
6,9-Ethano-1,4-methano-2-benzoxepin-5,10,11-tricarboxylic acid, 1,3,4,5,5a,6,9,9a-octahydro-9a-nitro-3-oxo-, trimethyl ester
8aH-4a,8-(Epoxymethano)-1,4-ethanonaphthalene-7,11,12-tricarboxylic acid, 1,4,5,6,7,8-hexahydro-9-oxo-
8aH-4a,8-(Epoxymethano)-1,4-ethanonaphthalene-7,11,12-tricarboxylic acid, 1,4,5,6,7,8-hexahydro-9-oxo-, trimethyl ester
Chalcone, 4'-dimethylamino-, hydrochloride
Chalcone, 4'-tert-butyl-
Naphtho[1,2-c]furan-5-succinic anhydride, 1,3,4,5-tetrahydro-1,3-dioxo-
Naphtho[1,2-c]furan-5-succinic anhydride, 1,3-dihydro-1,3-dioxo-

IT 8aH-4a,8-(Epoxymethano)-1,4-ethanonaphthalene-7,11,12-tricarboxylic acid, 1,4,5,6,7,8-hexahydro-5-hydroxy-9-oxo-
(and derivs.)

IT 4H-Phenaleno[1,2-c]furan-6-carboxylic acid, 5,6,6a,7,7a,8,10,10a-octahydro-4,8,10-trioxo-
(and isomer)

IT 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-octahydro-8,8a-dihydroxy-, di-γ-lactone di-Me ester
1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7,8,8a-octahydro-8,8a-dihydroxy-, γ-lactone
(and other derivs.)

IT 1H-Benzonaphthene-1,2,4-tricarboxylic acid, 2,3,3a,4,5,6-hexahydro-6-oxo-, 1,2-anhydride
(isomers and other derivs.)

IT 1-Naphthalenesuccinic acid, 3,4-dicarboxy-1,2,3,4-tetrahydro-
1-Naphthalenesuccinic anhydride, 3,4-dicarboxy-1,2,3,4-tetrahydro-, anhydride
(stereoisomers)

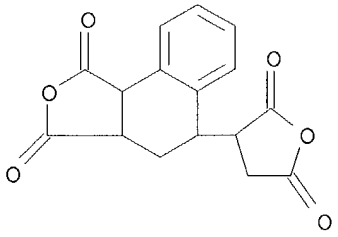
IT 31863-62-4, Acetamide, N-4-sulfamoyl-1-naphthyl-
(acyl derivs.)

IT 124924-89-6, 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic acid, 1,4,4a,5,6,7-hexahydro-
(and derivs.)

IT 100-42-5, Styrene
(and derivs., diene syntheses, etc., of)

IT 399-10-0, Chalcone, 4'-**fluoro**- 956-02-5, Chalcone, 4'-chloro- 1152-48-3, Chalcone, 4'-nitro- 2088-87-1, 1,2-Naphthalenedicarboxylic acid 2378-25-8, Chalcone, 3'-**fluoro**- 2403-27-2, Chalcone, 4'-bromo- 2657-25-2, Chalcone, 4'-hydroxy- 4420-43-3, 2-Naphthaleneacetic acid, 3-hydroxy-, γ-lactone 5343-99-7, 1,2-Naphthalenedicarboxylic anhydride 7466-60-6, Chalcone, 4'-iodo- 10060-32-9, 1,2-Naphthalenedicarboxylic acid, dimethyl ester 16619-21-9, Chalcone, 3'-nitro- 16619-32-2, Chalcone, 3'-methyl- 16619-38-8, Chalcone, 2'-nitro- 19811-14-4, Chalcone, 4'-isopropyl- 20426-48-6, Chalcone, 3'-chloro- 25023-37-4, Chalcone, 3'-bromo- 36063-03-3, 1,2,4-Naphthalenetricarboxylic acid, trimethyl ester 36439-98-2, 1,2,4-Naphthalenetricarboxylic acid 37471-70-8, Chalcone, 4'-ethyl- 107921-62-0, Chalcone, 3'-iodo- 108013-31-6, 1,2,3,4-Cyclohexanetetracarboxylic acid, tetramethyl ester

(preparation of)
IT 108-31-6, Maleic anhydride
(reactions of, with styrenes)
IT **13912-65-7**, Naphtho[1,2-c]furan-5-succinic anhydride, 1,3,3a,4,5,9b-hexahydro-1,3-dioxo-
(stereoisomers)
IT **13912-65-7**, Naphtho[1,2-c]furan-5-succinic anhydride, 1,3,3a,4,5,9b-hexahydro-1,3-dioxo-
(stereoisomers)
RN 13912-65-7 HCAPLUS
CN Naphtho[1,2-c]furan-1,3-dione, 3a,4,5,9b-tetrahydro-5-(tetrahydro-2,5-dioxo-3-furanyl)- (9CI) (CA INDEX NAME)



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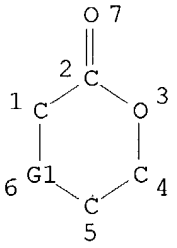

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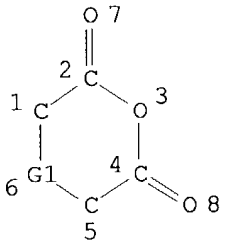

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TI Selection of Solid Dosage Form **Composition** through Drug-Excipient Compatibility Testing
AU Serajuddin, Abu T. M.; Thakur, Ajit B.; Ghoshal, Rabin N.; Fakes, Michael G.; Ranadive, Sunanda A.; Morris, Kenneth R.; Varia, Sailesh A.
CS Pharmaceutics R&D Department, Bristol-Myers Squibb Pharmaceutical Research Institute, New Brunswick, NJ, 08903, USA
SO Journal of Pharmaceutical Sciences (1999), 88(7), 696-704
CODEN: JPMSAE; ISSN: 0022-3549
PB American Chemical Society
DT Journal
LA English
AB A drug-excipient compatibility screening model was developed by which potential stability problems due to interactions of drug substances with excipients in solid dosage forms can be predicted. The model involved storing drug-excipient blends with 20% added water in closed glass vials at 50° and analyzing them after 1 and 3 wk for chemical and phys. stability. The total weight of drug-excipient blend in a vial was usually kept at about 200 mg. The amount of drug substance in a blend was determined on
the basis of the expected drug-to-excipient ratio in the final

formulation. Potential roles of several key factors, such as the chemical nature of the excipient, drug-to-excipient ratio, moisture, microenvironmental pH of the drug-excipient mixture, temperature, and light, on dosage form stability could be identified by using the model. Certain phys. changes, such as polymorphic conversion or change from crystalline to amorphous form, that could occur in drug-excipient mixts. were also studied. Selection of dosage form **composition** by using this model at the outset of a drug development program would lead to reduction of "surprise" problems during long-term stability testing of drug products.

CC 63-6 (Pharmaceuticals)

IT Drug interactions
(physicochem.; selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT Solubility
(selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT Drug delivery systems
(solids; selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT 9004-34-6, Cellulose, biological studies
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(microcryst.; selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT 81131-74-0 **85956-22-5** 134528-32-8 136590-28-8 233601-04-2 233601-05-3 233601-06-4 233601-07-5
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(selection of solid dosage form **composition** through drug-excipient **compatibility** testing)

IT 77181-69-2, Sorivudine 81131-70-6, Pravastatin sodium 88889-14-9, Fosinopril sodium 111223-26-8, Ceronapril 156715-37-6, Ifetroban sodium 233601-02-0 233601-03-1
RL: PEP (Physical, engineering or chemical process); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(selection of solid dosage form **composition** through drug-excipient compatibility testing)

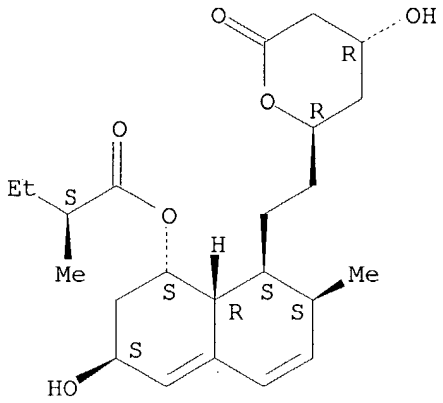
IT 57-11-4, Octadecanoic acid, biological studies 63-42-3, Lactose 69-65-8, D-Mannitol 557-04-0 1309-37-1, Iron oxide (Fe2O3), biological studies 4070-80-8, Sodium stearyl fumarate 7757-93-9, Dibasic calcium phosphate 12227-89-3, Black iron oxide 51274-00-1, Yellow iron oxide
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(selection of solid dosage form **composition** through drug-excipient compatibility testing)

IT **85956-22-5**
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(selection of solid dosage form **composition** through drug-excipient **compatibility** testing)

RN 85956-22-5 HCAPLUS

CN Butanoic acid, 2-methyl-, (1S,3S,7S,8S,8aR)-1,2,3,7,8,8a-hexahydro-3-hydroxy-7-methyl-8-[2-[(2R,4R)-tetrahydro-4-hydroxy-6-oxo-2H-pyran-2-yl]ethyl]-1-naphthalenyl ester, (2S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:573979 HCAPLUS
DN 125:196802
TI Lactone-modified organopolysiloxanes with good compatibility and their manufacture
IN Aida, Akihiko; Nakai, Noboru; Isozaki, Osamu
PA Kansai Paint Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08169955	A2	19960702	JP 1994-318006	19941221
	JP 3500477	B2	20040223		
	US 5583246	A	19961210	US 1995-573545	19951215
PRAI	JP 1994-318006	A	19941221		

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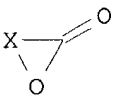
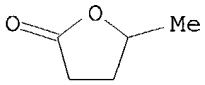


I

AB The title polymers shown as R1O[SiO(OR2)(OR3)]nR4 [R1-4 = Me, Et, Pr, Me2CH, (XCO2)mR5; n = 1-100, ≥1 of R1-4 = (XCO2)mR5; R5 = Me, Et, Pr, Me2CH; X = C2-14 bivalent saturated hydrocarbon; m = 1-3] are manufactured by ring-opening addition reaction of lactones I with R6O[SiO(OR7)(OR8)]nR9 (R6-9 = Me, Et, Pr, Me2CH). Thus, 744 g Colcoat ES 40 was treated with 684 g Placcel M at 140° for 7 h in the presence of 7 g BuSn(OC8H17)3 (II) to give a polymer with Mn 1600. Then, 30 parts thus obtained polymer was blended with 70 parts Bu methacrylate-2-hydroxyethyl methacrylate-styrene copolymer and 1 part II and diluted to give a curable **composition** with solid content 50% showing good coatability.

IC ICM C08G077-445
ICS C09D183-06
CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 42
IT **108-29-2DP**, γ-Valerolactone, reaction products with siloxanes 502-44-3DP, Placcel M, reaction products with siloxanes 11099-06-2DP, Colcoat ES 40, reaction products with lactones 12002-26-5DP, Methyl silicate, reaction products with lactones
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of lactone-modified siloxanes with good **compatibility** for coatings)
IT **108-29-2DP**, γ-Valerolactone, reaction products with siloxanes
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of lactone-modified siloxanes with good **compatibility** for coatings)
RN 108-29-2 HCAPLUS
CN 2(3H)-Furanone, dihydro-5-methyl- (8CI, 9CI) (CA INDEX NAME)



L32 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:126959 HCAPLUS
DN 98:126959
TI Miscible blends prepared from two crystalline polymers
AU Aubin, Madeleine; Bedard, Yves; Morrissette, Marie France; Prud'homme, Robert E.
CS Chem. Dep., Laval Univ., QC, G1K 7P4, Can.
SO Journal of Polymer Science, Polymer Physics Edition (1983), 21(2), 233-40
CODEN: JPLPAY; ISSN: 0098-1273
DT Journal
LA English
AB DSC was used to determine the miscibility behavior of several polyester-Saran blends, the 2 polymers forming these blends being semicryst. Saran is miscible with polycaprolactone (I) [24980-41-4], polyvalerolactone [26354-94-9], poly(butylene adipate) [24936-97-8], and poly(hexamethylene sebecate) [26762-10-7], since a single glass-transition temperature (Tg) was observed at each **composition** However, immiscibility was found between Saran and poly(ethylene adipiate) [24937-05-1], poly(ethylene succinate) [25667-11-2], poly(β-propiolactone) [25037-58-5], and poly(α-methyl-α-propyl-β-propiolactone) [25188-77-6], since 2 Tg's were recorded at several compns. Blends were obtained containing, over a wide range of compns., a miscible amorphous phase and two different types of crystals. From m.p. depression data on I and Saran crystals, thermodn. interaction parameters (χ) were calculated and were different for I-rich blends and for Saran-rich blends, suggesting a variation of χ with **composition** The miscibility of Saran with polyesters was attributed to a β-hydrogen bonding interaction or a C:O/CCl dipole-dipole interaction.
CC 36-6 (Physical Properties of Synthetic High Polymers)
IT 24936-97-8 24937-05-1 24938-37-2 24938-43-0 24980-41-4

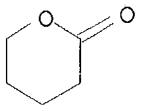
25037-58-5 25103-87-1 25188-77-6 25248-42-4 25265-42-3
25569-53-3 25667-11-2 **26354-94-9** 26499-05-8 26745-88-0
26762-10-7
RL: PRP (Properties)
(**compatibility** of, with Saran)

IT **26354-94-9**
RL: PRP (Properties)
(**compatibility** of, with Saran)

RN 26354-94-9 HCAPLUS
CN 2H-Pyran-2-one, tetrahydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 542-28-9
CMF C5 H8 O2



L32 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:35542 HCAPLUS
DN 98:35542
TI Epoxy resin **compositions** with good heat-shock resistance
PA Toshiba Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 57125244	A2	19820804	JP 1981-10182	19810128
PRAI JP 1981-10182		19810128		

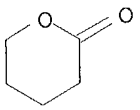
AB Epoxy resin compns. having good heat-distortion temperature and heat-shock crack
resistance contain a polyester-polyether derived from 1,4,6-trioxaspiro[4.4]nonane (I), hydroquinone diglycidyl ether (II), and γ-butyrolactone (III) and curing agents. Thus, a **composition** of Epikote 828 [25068-38-6] 100, copolymer (IV) [**84128-34-7**] (derived from I 90, II-III adduct 10, and BF3.Et2O 1 mol, weight-average mol. weight
25,000) 10, tetrahydrophthalic anhydride 80, and benzyldimethylamine 1 part having good **compatibility** was heated 1 and 5 h at 100 and 150° to give test pieces having heat-distortion temperature 115° and average heat-shock cycles before crack formation in metal-inserted samples 11.6, compared with 115 and 0.6, resp., for a similar **composition** without IV.
IC C08L063-00; C08L071-00
CC 37-6 (Plastics Manufacture and Processing)

L32 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1982:545570 HCAPLUS
DN 97:145570

TI Studies of polyester/chlorinated poly(vinyl chloride) blends
AU Belorgey, Georges; Aubin, Madeleine; Prud'homme, Robert E.
CS Dep. Chim., Univ. Laval, Quebec, QC, G1K 7P4, Can.
SO Polymer (1982), 23(7, Suppl.), 1051-6
CODEN: POLMAG; ISSN: 0032-3861
DT Journal
LA English
AB Chlorinated PVC was solution-blended with polycaprolactone (I) [25248-42-4], poly(hexamethylene sebacate) II) [26762-10-7], poly(α-methyl-α-propyl-β-propiolactone) (III) [25188-77-6], polyvalerolactone (IV) [26354-94-9], poly(ethylene adipate [24937-05-1], poly(ethylene succinate) [25667-11-2], and poly(β-propiolactone) [25037-58-5]. Glass transition temps. showed that chlorinated PVC was miscible with polyesters having a CH2-CO2 ratio ratio >3:1 (i.e. I, II, III, IV). The Gordon-Taylor k parameter (1952) was 1.0 and 0.56 for I and II blends, resp., showing that chlorinated PVC interacts more strongly with polyesters than does PVC, owing to its higher Cl content.
CC 36-6 (Physical Properties of Synthetic High Polymers)
IT Spherulites
(size of, of chlorinated PVC-polycaprolactone blends, **composition** effect on)
IT 24937-05-1 24938-37-2 24938-43-0 25037-58-5 25188-77-6
25248-42-4 25265-42-3 25569-53-3 25667-11-2 **26354-94-9**
26499-05-8 26745-88-0 26762-10-7
RL: PRP (Properties)
(**compatibility** of, with chlorinated PVC)
IT **26354-94-9**
RL: PRP (Properties)
(**compatibility** of, with chlorinated PVC)
RN 26354-94-9 HCAPLUS
CN 2H-Pyran-2-one, tetrahydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 542-28-9
CMF C5 H8 O2



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